# MANAGING PUBLIC SERVICES: THE ROLE OF NONPROFIT, FOR-PROFIT, AND GOVERNMENTAL ORGANIZATIONS

A Dissertation

by

MIYEON SONG

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| Chair of Committee, | Kenneth J. Meier |
| Committee Members, | Ian R. Turner |
| | Maria C. Escobar-Lemmon |
| | Justin B. Bullock |
| Head of Department, | Guy D. Whitten |

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# ABSTRACT

How do governmental, nonprofit, and for-profit organizations contribute to successful public service provision and delivery? This dissertation provides a comprehensive theoretical framework of how public, nonprofit, and for-profit organizations deal with environmental constraints, what management strategies improve performance, and how performance is evaluated. This dissertation then conducts a series of empirical tests in the context of U.S. healthcare. First, this dissertation investigates how public, nonprofit, and for-profit organizations respond to increased competition in a service market. The findings suggest that public and nonprofit organizations tend to improve service quality while for-profits decrease it when they face increased competition. Second, this research examines whether the effects of management on performance vary across sectors. The findings imply that managing internal operations and external constraints can contribute more to service performance in for-profit organizations compared with public and nonprofit organizations; yet networking with political stakeholders tends to enhance the positive effects of external management only in the public sector. Third, focusing on performance assessment, this dissertation tests whether citizens' perceptions of service quality are affected by organizational ownership. The findings imply that public and nonprofit organizations are likely to get less credit from citizens than their for-profit counterparts for equivalent performance, but this sector bias decreases in a competitive market. Taken as a whole, the findings support the notion that publicness matters in the public service process.

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# NOMENCLATURE

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| ACS | American Community Survey |
| AHA | American Hospital Association |
| CMS | Centers for Medicare and Medicaid Services |
| EDM | Expectancy Disconfirmation Model |
| GDP | Gross Domestic Product |
| HC | Hospital Compare |
| HCAHPS | Hospital Consumer Assessment of Healthcare Providers and Systems |
| HHI | Herfindahl-Hirschman Index |
| IQR | Inpatient Quality Reporting |
| MMA | Medicare Modernization Act |
| NHA | Nursing Home Administrator |
| NHC | Nursing Home Compare |
| NPM | New Public Management |
| OECD | Organisation for Economic Co-operation and Development |
| OLS | Ordinary Least Squares |
| OQR | Outpatient Quality Reporting |
| SOP | Standard Operating Procedure |
| RN | Registered Nurse |
| VBP | Value-Based Purchasing |

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# 1. INTRODUCTION

"Everyone knows business as well as governments have collected trash, swept streets, operated buses, managed hospitals, and run schools. Some of us are aware that private security firms have more employees than do municipal police departments" (Wilson 1989, 346). These cases raise a fundamental question in public administration: do private organizations provide better public services than public organizations? While "the best way to think about this is to ask whether we would be willing to have the same product or service delivered by a private firm" (Wilson 1989, 331), it is difficult to simply decide who should deliver services given the different standards and constraints between public agencies and private organizations (Rainey 2009; Wilson 1989).

All countries face decisions about how their governments should deliver services to citizens, including "which sector is to do what?" (Rainey and Chun 2005, 72). Over the last several decades, many scholars have studied this question by looking at what makes public organizations distinct from private organizations and how these differences affect service performance (for a review, see Rainey 2009). Research on the public–private distinction finds that public organizations compared with private organizations tend to: (1) face more external controls by political authorities and citizens (Boyne 2002; Rainey 2009), (2) have more of a bureaucratic structure and higher levels of centralization and formalization with more ambiguous goals (Chun and Rainey 2005b; Marsden, Cook, and Kalleberg 1994; Kalleberg, Knoke, and Marsden 2001), (3) provide managers with more limited authority, less flexibility, and fewer management tools

(Chun and Rainey 2005a; Rainey 2009), and (4) have multiple performance criteria that are ambiguous and hard to measure (Andersen, Boesen, and Pedersen 2016; Boyne 2003a, 2003b; Walker, Boyne, and Brewer 2010).[1]

Although this line of research sheds lights on the similarities and differences between public and private organizations, evidence on performance between the two sectors is inconclusive (e.g., Bel, Fageda, and Warner 2010; Bel and Warner 2008). Moreover, while scholars have suggested that public–private differences generate unique constraints and opportunities for organizations, there remains a need for understanding how public and private organizations operate under these constraints and opportunities.

Another knowledge gap in the public–private distinction research is the role of nonprofit organizations. The government has relied "more heavily on nonprofit organizations than on its own instrumentalities" to deliver government services, and "nonprofits receive more of their income from government than from any other single source" (Salamon 1987, 29). Despite their importance, the role of nonprofit organizations in public service provision has been largely overlooked (Moore 2000; Salamon 1987). Nonprofits are private organizations from a legal ownership perspective, but they are distinct from for-profits because they do not distribute income to shareholders. Nonprofit organizations also differ from public organizations in "the identification of clients and the setting of policy priorities" though both organizations exist to "serve the public" (Lee and Wilkins 2011, 47). As the nonprofit sector continues

[1] A great deal of research recognizes the significant differences in work motivation and attitudes between public and private sector employees (e.g., Bullock, Stritch, and Rainey 2015; Chen and Rainey 2014).

to grow in terms of size and importance in society (Boris and Steuerle 2006; Hall 2006), further development of theoretical understanding of the nonprofit sector remains a key to successful public service provision.

Should streets be cleaned by government agencies or private contractors? Should students be educated in public or private schools? Everyone needs healthcare at some point in their lives, so should the government or the private sector provide it? Will nonprofits do a better job in providing those services? Will the answers differ depending on environmental constraints or management strategies? Going beyond simply comparing which sector performs better, this dissertation provides a comprehensive picture of how public, nonprofit, and for-profit organizations respond to their environments, how they manage internal operations and external influences to improve performance, and how their service quality is evaluated. This dissertation contributes to public administration theory and practice by advancing our knowledge of the role of public, nonprofit, and for-profit organizations in public service delivery, and it suggests practical policy implications for improving service delivery performance.

### 1.1. Conceptualizing Publicness

What makes an organization public? This is a central question in the public organization and management literature because identifying publicness is the first step to

unpack the nature of public–private differences (Merritt 2019; Rainey 2009).[2] One of the conventional approaches to understanding publicness is the *core approach*, which clearly distinguishes between public and private organizations by focusing on legal ownership (Dahl and Lindblom 1953; Stark 2010). Ownership concerns whether organizations are "owned collectively by political communities" or "owned by individual and institutional shareholders" (Andrews, Boyne, and Walker 2011, i302). Scholars have highlighted the role of ownership in defending publicness and suggested that the different legal statuses of public and private organizations generate fundamentally different political environments, organizational structures, and behaviors (Rainey 2009).

The second approach is the *dimensional publicness approach*, which suggests that publicness is not a single discrete dimension but rather the extent to which organizations are exposed to political and economic authority (Bozeman 1987; Bozeman and Bretschneider 1994; Dahl and Lindblom 1953; Perry and Rainey 1988; Wamsley and Zald 1973). In addition to ownership, this approach emphasizes the interrelation of legal ownership, funding sources, and degree of social control. Funding sources refer to the degree of government funding or the degree of private funding (Bozeman 1987; Wamsely and Zald 1973).[3] Social control reflects the degree to which an organization's

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[2] There is also the generic approach that argues public and private organizations have more similarities than differences; however, this approach has been criticized for dismissing and oversimplifying critical public–private differences.

[3] By combining ownership and funding dimensions, Wamsley and Zald (1973) suggest that organizations can be categorized as: (1) government-owned and government funded, (2) government-owned but funded by private sources, (3) privately owned but government funded, and (4) privately owned and funded. Bozeman (1987) also suggests two dimensions of publicness: political authority and economic authority.

behavior is constrained by political forces rather than by market forces. In other words, the concept reflects how much organizations are controlled "by political demands and regulations rather than customer demands and competitive pressures" (Andrews, Boyne, and Walker 2011, i302; Dahl and Lindblom 1953). Regarding political control, Bozeman (1987, 83) argues that "all organizations are public because political authority affects some of the behavior and processes of all organizations."

Scholars have suggested the core and dimensional approaches are "equally important" and "not mutually exclusive alternatives but are instead useful and even complementary alternatives" (Bozeman and Bretschneider 1994, 218). Later works on publicness suggest alternative approaches. Based on public interest theory, scholars have incorporated public values and public interests into the publicness discussion and demonstrated why economic indices often fail to adequately value social choice (e.g., Bozeman 2007; Moulton and Eckerd 2012). In a similar vein, Bozeman and Moulton (2011) present an integrative publicness model focusing on both empirical and normative perspectives. While empirical publicness explains "organizations on the basis of their mix of political and economic authority," normative publicness "seeks to identify, prescribe or infuse public values" (Bozeman and Moulton 2011, i363).

Later, Moulton (2009) suggests a framework that incorporates outcome publicness. Moulton's (2009) model considers equity as performance as well as traditional performance indicators such as efficiency and effectiveness. Highlighting the

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One of the contributions of Bozeman's (1987) model is that it treats the two dimensions as a continuum rather than a dichotomy, which means organizations can be *more* or *less* public in each dimension.

multilevel nature of publicness, Miller and Moulton (2013) introduce environmental publicness into the discussion. They focus on the influences of publicness from the policy environment and suggest that policy environment publicness can interact with organizational publicness.

### 1.2. Publicness and Performance

Many theories and literature have studied whether public or private status makes a difference in performance. Public choice theory in economics provides theoretical expectations that free markets and freedom of choice generate superior outcomes to those provided by the government, and this view implies public agencies are inferior to private firms (Downs 1967; Niskanen 1971). The economic theory of property rights also argues that public ownership tends to decrease efficiency (Clarkson 1972; Demsetz 1967) because property rights are vague in public organizations and there are few incentives for politicians to monitor manager's behaviors, whereas private organizations have owners and stakeholders with clear incentives to monitor managers (Andrews, Boyne, and Walker 2011).

Political scientists also have argued that the information asymmetries between politicians and bureaucracies make public agencies inefficient. Political control can have a detrimental effect on performance if public organizations must respond to multiple principals who force conflicting demands on them. Market control, by contrast, is often thought to lead to higher efficiency, effectiveness, and customer satisfaction (Andrews, Boyne, and Walker 2011).

On the other hand, public goods theory explains why public goods cannot be produced efficiently by the private sector and argues that public goods should be of interest to more than firms. This theory highlights the role of government in the production of those goods for which the market fails and expects that the government will produce quality public goods demanded by the median voter (Weisbrod 1988). Contract failure theory also stresses market failure and provides several reasons to prefer the public and nonprofit sectors over the for-profit sector (Salamon 1987).

Numerous studies have compared public and private organizations within the functional categories, such as schools (Chubb and Moe 2011), hospitals (Brown 2003; Duggan 2000; Sloan et al. 2001), nursing homes (Amirkhanyan, Kim, and Lambright 2008; Chou 2002), mental healthcare facilities (Forder 2000), airlines (Backx, Carney, and Gedajlovic 2002), and job training centers (Heinrich 2000). These studies have not provided a clear answer to the question of which sector performs better. A handful of systematic review studies have reported no significant differences between public and private production (e.g., Bel, Fageda, and Warner 2010; Bel and Warner 2008; Carvalho, Marques, and Berg 2012; Petersen, Hjelmar, and Vrangbæk 2018).

Other studies have shown significant differences. In the context of U.S. healthcare, Campbell (1990) finds that publicly owned hospitals are significantly less efficient than privately owned hospitals. Later works have supported this finding (e.g., Cheon 2016; Chirikos and Sear 1994; Vitaliano and Toren 1996). Rosko (1999), however, shows a very different picture. In U.S. hospitals, he finds that for-profit hospitals tend to be less efficient than public ones. In U.S. healthcare of the elderly,

Amirkhanyan, Kim, and Lambright (2008) find that public and nonprofit providers outperform their for-profit counterparts.

Answering the question of whether public organizations outperform private organizations is not simple, partly because "the authority to define good performance differs in public and private organizations" (Andersen, Boesen, and Pedersen 2016, 855).[4] Governmental organizations have a complex relationship with multiple governmental agencies and political authorities (Mintzberg 1973) who hold diverse views on performance (Andersen, Boesen, and Pedersen 2016; Boyne 2003a, 2003b; Walker, Boyne, and Brewer 2010). These multiple principals generate multiple—and often controversial—performance goals and standards, such as efficiency, equity, and accountability (Wilson 1987). By contrast, for-profit firms are more likely to have a close tie with their owners and customers, and making them happy by maximizing profits is an important performance criterion.[5]

Even if there is consensus on performance criteria, government agencies have more constraints than private organizations. Wilson (1987, 331) states that "to evaluate the efficiency of a government agency one first must judge the value of the constraints under which it operates; to improve its efficiency one must decide which constraints one

[4] Boschken (1992) defines performance indices based on the types of authority (economic vs. political), and the central performance question varies depending on the type of authority. For organizations resting on economic authority, "making customers happy" is an important performance criterion, while "meeting the public mandates" is the main concern for organizations under political authority (Boschken 1992, 271–272).

[5] After reviewing studies testing the correlation between performance measures, Andrews, Boyne, and Walker (2006a) conclude the consensus on important performance criteria is greater in the private sector than the public sector.

is willing to sacrifice." In U.S. hospital care, Cheon (2016) supports this claim, finding public and nonprofit hospitals outperform their for-profit counterparts in improving patient satisfaction but underperform in improving efficiency. More importantly, the finding suggests there is a trade-off between patient satisfaction and efficiency, thereby implying that a large portion of costs for taking care of patients can be sacrificed to increasing operational efficiencies.

Moreover, publicness is not the only factor that affects performance. Political and market environments, organizational structure, and management practices also significantly influence public service performance (Ashworth, Boyne, and Entwistle 2010; O'Toole and Meier 2011). Andrews, Boyne, and Walker (2011) suggest the effect of publicness may be contingent on organizational characteristics. This argument implies that organizations do not perform well simply because they are public or private; rather, their unique characteristics based on ownership status affects their performance. In other words, public ownership may interact with the external environment and internal operation, thereby affecting performance. This interactive relationship has been understudied significantly.

### 1.3. A Trichotomy of Sectors: Nonprofit, For-profit, and Government

Traditional literature on publicness has focused primarily on the distinction between the public and private sectors (e.g., Dahl and Lindblom 1953; Perry and Rainey 1988; Wamsley and Zald 1973). Recent nonprofit sector theories adopt the concept of a "trichotomy of sectors" that comprises nonprofit, for-profit, and government (Steinberg

and Powell 2006, 2). In particular, *three failure theories*—market filature, government failure, and voluntary failure—provide theoretical insight into the distinctive role of public, nonprofit, and for-profit organizations in the broader economy (Salamon 1987; Steinberg 2006).

*Market failure*

Market failure, the most well-known of the three failure theories, concerns "inefficiencies resulting from for-profit provision of goods and services" (Steinberg 2006, 119). In theory, for-profit firms efficiently deliver services in a competitive market based on Adam Smith's famous notion of the *invisible hand*. This idea is a fundamental theorem of welfare economics and suggests that equilibrium outcomes in a perfectly competitive are efficient. This proposition holds when certain conditions are met. First, the theory assumes perfectly competitive markets in which no individual sellers or buyers can control prices. Second, consumers are well informed about the quality and quantity of goods and services, and they behave rationally. Third, these goods and services are consumed individually rather than collectively.

These conditions are not always met in the real world, and failing to meet these conditions is often a source of market failure. More specific examples of market failure include the under-provision of collective goods. Put differently, worthwhile public goods are underprovided because they are nonrival and nonexcludable (Steinberg 2006). Other examples include the over-exclusion of public goods, which means the access to public goods is overly restricted; the quantity or quality of goods is different from what is promised (Steinberg 2006); and negative externalities generate social costs.

*Government failure*

Governments seek to address market failure in a variety of ways. They solve the under-provision problem either by directly producing collective goods or by contracting with private providers (Steinberg 2006). Governments also regulate for-profit firms through mandates and requirements, provide selected groups with subsidies that help them access excludable public goods, and set the terms of exclusion to address the over-exclusion problem (Salamon 2002b; Steinberg 2006). Such activities often lead to government failure or the economic inefficiency caused by government intervention in the context of public economics. This theory suggests government intervention to correct market failure can fail by creating inefficiency and leading to a misallocation of resources.[6]

In the context of the three failures theory, the concept of government failure deals with a broader question: why are some citizens fundamentally dissatisfied with government services? In developing a theory of the role of the nonprofit in service provision, Salamon (1987) suggests that not only markets have inherent limitations as a provider of collective goods but also governments. He argues that in a democracy, governments will "produce only that range and quantity of collective goods that can command majority support" and "this will leave some unsatisfied demand on the part of

[6] Economists including Milton Friedman have argued that market failure does not necessarily require government intervention to fix the problem. They contend that the costs of government failure might be worse than those of market failure.

segments of the political community" that cannot convince the majority (Salamon 1987, 35).

The theoretical background is the median voter theorem, which suggests that public service provision in a democracy will be set at the preference level of the median voter (Bowen 1943; Downs 1957; Hotelling 1929). In this case, at least half of all voters would like to see larger quantity or higher quality service, and only the middle man would be satisfied with the current levels of service provision (Steinberg 2006). In a similar vein, Weisbrod (1975) suggests that governments fail to meet the desire of some individuals (usually high demanders) regardless of whether government provision is efficient or inefficient in the economic sense. In sum, heterogeneous preferences among citizens lead to an "unsatisfied demand for collective goods" (Salamon 1987, 35), and individuals who are dissatisfied with government services are more likely to turn to nonprofit organizations to meet their expectations (Weisbrod 1975).

*Voluntary failure*

Inherent limitations in both market and government call for the existence of the nonprofit sector as a provider of collective goods (Hansmann 1981; Salamon 1987; Weisbrod 1975). Nonprofit organizations help solve market and government failure in four ways. First, unlike for-profit firms, nonprofits have little profit distribution motivation, and it is this nondistribution of profits that reduces incentives to provide low-quality services (Steinberg 2006). Second, nonprofits are often managed by stakeholders who care about service quality rather than financial returns (Ben-Ner 1986). Third, nonprofits are often established with charitable purposes and become trustworthy;

the existence of trustworthy nonprofits may have "spillover benefits on the trustworthiness of competition" (Hirth 1999; Steinberg 2006, 125). Last, unlike governments, nonprofits are voluntary organizations without coercive power and are less likely to generate inefficiency in the market.

The nonprofit sector, however, also suffers from voluntary failures such as philanthropic insufficiency, particularism, paternalism, and amateurism (Salamon 1987; Steinberg 2006). Philanthropic insufficiency explains why nonprofits have difficulties in addressing the under-provision of collective goods. The voluntary actions of nonprofits are not free from the *free rider problem,* and they lack reliable resources to provide adequate services (Salamon 1987). Philanthropic particularism refers to the tendency of nonprofits to focus on particular subgroups (though it can be their purpose), which could be a problem when it accompanies favoritism and causes wasteful duplication of services (Salamon 1987). Philanthropic paternalism refers to a situation in which volunteers treat problems as they understand them rather than as the clients see them (Steinberg 2006). Philanthropic amateurism indicates a lack of capacity to cope with human problems (Salamon 1987).

The three failures theory does not presume which sector comes first and which sector comes later to respond to the other's failure.[7] The theory instead places the three sectors in a circle, with one sector responding to the failures of the other two (Steinberg

[7] Weisbrod (1975) has suggested, for example, that governments and for-profits come first and nonprofits respond to the failures of these two sectors, while Salamon's (1987) exposition suggests that nonprofits come first and their failures are addressed by market and governments. This debate has no conclusion.

2006). This approach suggests we need to consider all three sectors simultaneously to understand a more complete picture of public service provision (Salamon 1987). Government agencies, for-profit firms, and nonprofit organizations play a unique role in public service provision, and each sector has its own shortcomings—yet, we do not know which sector can close the circle. More theoretical exploration of the role of each sector and more systematic empirical analysis are needed.

### 1.4. Revisiting the Publicness Puzzle

The purpose of this dissertation is to revisit Barry Bozeman's (1987) *publicness puzzle*—that is, how the public status of organizations affects their behavior and performance. While this question may be studied in a number of ways, this dissertation further investigates how the public status of organizations determines their strategies to deal with external constraints, what management strategies can be more or less effective across sectors, and how performance is evaluated by citizens. Furthermore, this project pays attention to the unique role of nonprofit organizations based on the notion of a trichotomy of sectors. By incorporating nonprofits into the public–private distinction literature, this dissertation expands theoretical perspectives on public service provision through public, nonprofit, and for-profit organizations. Below is a description of the theoretical motivations for the accompanying three essays.

The first puzzle of this project is the role of external environments in shaping organizations' behaviors. In particular, this part focuses on market constraints in public service delivery and examines how public, nonprofit, and for-profit organizations deal

with increased competition in a service market. In classical economic thought, market competition allows consumers to choose the best possible options and drives out bad performers from the market, thereby contributing to the better provision of services. The claims for the superiority of the private sector over the public sector are based on market competition (Shleifer 1998). An underlying assumption here is that public agencies do not compete with others and enjoy monopoly status, while for-profit firms operate in a competitive market; therefore, only private firms benefit from market competition. In many public services, however, public organizations do compete with other public organizations as well as for-profit and nonprofit organizations, and competition does affect their behaviors (Johansen and Zhu 2014).

The other underlying assumption is that the market mechanism works. Perfect competition in theory leads to an efficient use of resources in a free market, but this is rare in the real world. In many policy fields, including healthcare, there is a great deal of information asymmetry between service providers and consumers, which creates an imbalance of power in transactions and often causes adverse selection and moral hazards. Moreover, many service users have limited mobility. These factors often limit the positive function of market competition. Under this condition, does market competition still contribute to better service quality? When public organizations compete with for-profit organizations in the market, how do they respond to increased market competition? Is market competition better for for-profit providers than for public or nonprofit providers? Little empirical research addresses these questions.

The second puzzle is about the effect of management on performance. Numerous studies support the notion that management matters for performance (e.g., Ingraham and Lynn 2004; Lynn, Heinrich, and Hill 2000a; Meier et al. 2006; O'Toole and Meier 2011) and public management differs from business management (e.g., Allison 1979; Boyne 2002; Rainey and Chun 2005). The questions then become: how does management matter differently across public, nonprofit, and for-profit organizations? What management practices are more or less effective in which sector? Does the effect of management on performance depend on the structure? If so, does this relationship vary by sector?

Among the few that address these questions, Meier and O'Toole's (2011) work makes a significant contribution to the literature. They provide theoretical expectations on how managing internal operations and managing external constraints affect performance differently in public and private organizations. While their work sheds light on the interactive effects of publicness and management, little empirical evidence exists for this question. Moreover, there has been little theoretical advancement as to which structure can enhance the effect of management.

The third puzzle reexamines performance. Even if public organizations outperform private organizations, they do not get any credit when citizens fail to recognize it (James and Van Ryzin 2017a). How performance is perceived by citizens is just as important as how organizations actually perform. Prior literature has highlighted that citizens' perceptions of service performance can be affected by whether an organization is public or private. Findings suggest that citizens tend to associate public

organizations with inefficiency and low productivity compared with private organizations (Hvidman 2018; Marvel 2015, 2016). If there are negative perceptions towards public sector performance in general, do citizens also judge equivalent performance information more negatively for public organizations? Despite the importance, little is known whether public ownership shapes the association between actual performance indicators and citizens' evaluations of performance.

### 1.5. Research Context: Healthcare in the United States

The research questions discussed above are investigated in the context of healthcare in the United States. Healthcare is one of the most salient issues in the United States and abroad due to its broad impacts on individuals and increasing health expenditures. In the United States, public, nonprofit, and for-profit healthcare institutions operate according to different structures and management based on their publicness. At the same time, they can be compared on the basis of consistent performance indicators.

According to the Centers for Medicare and Medicaid Services (hereafter CMS), total U.S. healthcare spending grew 3.9%, reaching $3.5 trillion in 2017 (CMS 2018). That is $10,739 per person, and this health spending accounts for 17.9% of the nation's gross domestic product (GDP). Hospital care and nursing care are two major spending categories. Hospital care, for example, comprised 33% of entire health spending ($1.1 trillion) in 2017 (CMS 2018). While private health insurance paid for a fair amount of healthcare spending, federal, state, and local governments still accounted

for large shares of spending. Looking at health spending by major funding sources, Medicare and Medicaid spending totaled $705.9 billion (20% share) and $581.9 billion (17% share), respectively, while private health insurance spending was $1.2 trillion (34% share) in 2017 (CMS 2018).[8] Given the amount of the health expenditure and its impact on society, major healthcare reforms have always been in the center of political debates (e.g., the Affordable Care Act).

U.S. healthcare is not only substantively important but also provides a theoretically important research setting for public–private comparison. In both hospital care and long-term care, for-profit, nonprofit, and government-owned facilities operate and compete with each other in a fee-for-service market system. While a large portion of health expenditure comes from governments through Medicaid and Medicare, the private sector serves a substantial portion of clients in U.S. healthcare service. Private nonprofit facilities (51%) and for-profits facilities (19%) comprised more than two-thirds of all hospitals in the United States while public hospitals comprised less than one third (30%) in 2016 (AHA 2017). For long-term care, private for-profit facilities also dominated the nursing home industry (69%), followed by nonprofit nursing homes (24%), and public nursing homes (7%) in 2016 (NHC 2017). Therefore, U.S. healthcare is an example of a complex public service where for-profit, nonprofit, and government-owned organizations coexist with a mixture of public and private funding.

[8] Some portion of that private spending is the result of either government providing healthcare for its employees through private insurance or public policy mandates on health insurance.

Although these public, nonprofit, and for-profit providers are different in terms of legal property ownership, their core service production and procedures share similarities (Johansen and Zhu 2014). In addition, all facilities face the same set of regulations and laws. This setting can address one of the challenges in research on public–private comparisons that are differences in tasks, and industry characteristics can influence organizations and their management more than their publicness (Rainey and Chun 2005).

Last, the standardized healthcare quality indicators also make U.S. healthcare a great research setting. To make an *apples to apples* comparison, the existence of comparable performance indicators across sectors is essential. In hospital care, CMS reports information about the quality of healthcare at more than 4,000 Medicare-certified hospitals across the country through Hospital Compare data. In particular, the Hospital Value-Based Purchasing (VBP) Program provides comprehensive and standardized performance indicators that can be applied to all hospitals regardless of their legal ownership. CMS participates in the Hospital Quality Alliance (HQA) to make performance information of hospitals available to the public and to encourage hospitals to improve their quality of care, support consumer choice, and enhance public accountability in healthcare.[9] In long-term care, CMS also reports a standardized quality indicator (5-star quality rating) and the number of health deficiencies for all Medicaid-

[9] For more details, see the Hospital Consumer Assessment of Healthcare Providers and Systems website (http://www.hcahpsonline.org).

or Medicare-certified nursing homes across the country. All information is publicly available through the Nursing Home Compare (NHC) website.[10]

### 1.6. Three Essays on Organizational Publicness

The purpose of this dissertation is to investigate how public, nonprofit, and for-profit organizations cope with policy environments, which managerial strategies are more effective in promoting service performance for each sector, and how citizens evaluate the performance of these organizations differently. The three empirical essays that follow discuss the current literature, provide theoretical expectations, and present an in-depth empirical assessment of these questions. The three essays provide considerable potential for extending our understanding of the role of public, nonprofit, and for-profit organizations, and they provide policy implications for successful public service delivery.

The first empirical essay, "A Race to the Top or a Race to the Bottom? Market Competition and Regulatory Compliance Across Public, Nonprofit, and For-profit Organizations," examines how policy environments affect the way public, nonprofit, and for-profit organizations contribute to successful policy implementation. The market structure of public service delivery is viewed as an important policy environment, and this study provides a theoretical framework for different motivations for regulatory compliance across sectors under increased market competition.

[10] For more details, see the NHC website (https://www.medicare.gov/nursinghomecompare).

Using panel data on U.S. nursing homes, this essay empirically tests how public, nonprofit, and for-profit facilities respond differently to market competition. The findings show that increased competition promotes compliance with health regulations and improves service quality among public and nonprofit facilities. Competition among for-profit facilities, in contrast, appears to decrease compliance with regulation and lower the quality of services. These unexpected results challenge the current wisdom in public and business management that market competition works better in the private sector than in the public sector. These findings also suggest market competition is not a cure-all, but competition among public and nonprofit organizations can produce public policy benefits. This study raises a serious challenge to current health policy by demonstrating that effective service delivery in healthcare will not necessarily be improved by competition, particularly among private sector for-profit organizations.

The second essay, "Management and Performance in Public, Nonprofit, and For-profit Organizations: An Old Comparison with a New Approach," builds upon literature on the public–private distinction and the management–performance relationship to examine how ownership shapes the effect of management on performance. I expect that different external circumstances lead to the different impact of managerial buffering that deals with environments while different organizational structures affect the impacts of internal management on performance across public, nonprofit, and for-profit organizations. To test these hypotheses, this research focuses on tangible management actions, such as managing internal operations, searching for new

opportunities, and buffering environmental influences, and examines how these management practices affect service performance.

I conduct a series of empirical analyses by using surveys from more than a thousand top administrators in U.S. nursing homes along with standardized archival performance data. The findings suggest managerial priorities and the effect of three different management strategies on performance vary significantly across public, nonprofit, and for-profit facilities. This study contributes to the public management literature by advancing our understanding of the heterogeneity of managerial impacts on public service performance.

The third essay, "The Case for Government Performance: How Publicness Shapes Citizens' Perceptions of Service Performance," focuses on service performance in the eyes of citizens. Citizens have repeatedly exposed the notion that government organizations are inherently inferior to private organizations (Goodsell 2004). Prior research suggests that citizens' evaluations of performance in the public sector are weighed down by their deep-rooted negative views about the public sector (Hvidman 2018; Marvel 2016). This research draws attention to the role of ownership in shaping citizens' perceptions of service performance and explores whether citizens tend to judge equivalent performance information more negatively for public organizations than private organizations.

This essay combines multiple data sources that include both archival performance indicators and service users' satisfaction with service quality in U.S. hospitals. Then, I test whether objective hospital performance indicators are more or less

closely aligned to patients' perceptual evaluations of healthcare quality in public hospitals than in private hospitals. The findings show that patients' evaluations are more closely associated with objective performance indicators in for-profit hospitals than in public or nonprofit hospitals. This finding implies that for-profit hospitals get more credit for quality healthcare than public or nonprofit hospitals. Additional analysis, however, shows this perceptual bias in performance assessment tends to fade away as competition increases in a local healthcare market.

# 2. A RACE TO THE TOP OR A RACE TO THE BOTTOM? MARKET COMPETITION AND REGULATORY COMPLIANCE ACROSS PUBLIC, NONPROFIT, AND FOR-PROFIT ORGANIZATIONS

## 2.1. Introduction

While private organizations operate in a service market competing for resources and clients (Salamon 2002a), it is often thought that governmental organizations do not compete with others. Despite this traditional view, public organizations are increasingly facing market competition in delivering public services (Johansen and Zhu 2014). Recent new public management (NPM) reforms promote competition in the public sector, and increased public expectations of service efficiency also emphasize the role of competition in the public sector. Despite the attention, we know little about whether market competition drives successful policy implementation and contributes to better policy outcomes. The existing literature offers little systematic evidence as to how market competition influences differently across public, nonprofit, and for-profit organizations.

Research on sector differences has found there are significant differences in organizational structure, management strategies, clientele characteristics, and performance across public, nonprofit, and for-profit organizations (e.g., Boyne 2002; Chun and Rainey 2005a, 2005b; Lee and Wilkins 2011; Nutt and Backoff 1992; Rainey 2009; Rainey and Bozeman 2000; Walker and Bozeman 2011). The different levels of market pressure and political authority across sectors have received attention as well

(Johansen and Zhu 2014). Governmental organizations, for example, are constrained by formal mandates and obligations and significantly influenced by political constraints (Boyne 2002; Rainey 2009). Governments have a choice to *make or buy*, so potential market competition is a factor. For-profit firms, however, are primarily driven by the market mechanism. Market pressure plays a crucial role in setting priorities in managerial practices in the for-profit sector (Johansen and Zhu 2014). Nonprofit organizations rely on a mix of revenue sources, including private donations, government funding, and earned program revenues (Fischer, Wilsker, and Young 2011). Nonprofits therefore often face market pressure and political constraints simultaneously.

While the effect of political constraints has been a popular subject in successful policy implementation, relatively less attention has been paid to the role of market constraints. In particular, little is known about how public and nonprofit organizations respond to market constraints in the process of regulatory compliance. This may be partly because of the view of classical theories of regulation, which suggests the rationale for regulation is to address market failures that occur due to natural monopolies, information advantage of providers, or negative externalities (Breyer 1982). Given that market failure is associated with inefficiencies in the for-profit provision of services, the literature on regulatory compliance has mainly focused on the behavior of for-profits rather than that of public or nonprofit organizations. Or less attention may be partly because most research has been conducted in the context of environmental policy, where market competition is relatively limited.

This essay aims to contribute to the literature by examining how market competition affects the regulatory compliance of service providers in the context of U.S. healthcare. Specifically, this study tests how competition in the elderly healthcare market influences facilities' regulatory compliance using a national dataset of U.S. nursing homes over several years. In addition to testing the relationship between market competition and regulatory compliance, this study investigates how public, nonprofit, and for-profit facilities respond differently to increased market competition.

The present study begins with a theoretical foundation of regulatory compliance, highlighting how the ownership status of regulated entities influences their willingness to comply with the regulation. This research hypothesizes that motivations for compliance vary across public, nonprofit, and for-profit organizations under market competition. I then develop a research design to test the hypotheses and present empirical findings. Last, I discuss the results and conclude with limitations, contributions, and practical implications.

## 2.2. Literature on Regulatory Compliance

The question of what contributes to successful regulatory compliance has been extensively asked and answered. Regulation is a rule or directive made by a government and other authorities that is designed and operated for the better use of public resources and power (Stigler 1971). Compliance with regulations refers to "the extent to which regulatees adhere to the requirements of a given set of regulations" (May and Wood 2003, 119). A large body of literature has provided explanations for what makes

organizations comply with regulations, including enforcement strategies, regulated entities' characteristics, motivation for compliance, and ownership status.

Given the fundamental asymmetry of information between regulator and regulatees (Etienne 2014), a large stream of literature in the field has studied the tools and strategies that regulators can use to increase compliance. Scholars have suggested that variation in the use of *carrots* (incentive-based tools) and *sticks* (deterrence-based tools) can best describe regulatory enforcement styles.[11] Along this approach, studies have investigated the effectiveness of different tools of enforcement, such as sanctions (May and Winter 1999), inspections (Beaumont 1979), funding (Weissert 2001), monitoring and oversight (Kauppi and Van Raaij 2014; Weissert 2001), incentives (Verma, Mitnick, and Marcus 1999), compliance assistance (May and Winter 1999; Stafford 2012), guidance and training (Kauppi and Van Raaij 2014), and campaign-style enforcement (Liu et al. 2015).[12] Some scholars have called for a combination of cooperative and deterrence tools (Ayres and Braithwaite 1992; Scholz 1984).

In addition to the regulators' strategies, much of the regulatory literature has focused on the regulated entities' characteristics and investigated what drives them to

[11] A number of other distinctions have been made regarding different styles of regulatory enforcement. Some scholars, for example, have suggested that enforcement styles vary along with the degree of rigidity (May and Wood 2003, 119), ranging from "acting like consultants" (using a cooperative and facilitative approach) to "acting like cops" (using a coercive and legalistic approach).

[12] These studies, however, have not reached a conclusion on which is the most effective tool. After reviewing the existing empirical evidence on the environmental enforcement, Gray and Shimshack (2011) conclude that environmental monitoring and enforcement activities can generate reductions in violations and in emissions. May and Wood (2003), however, argue there is no direct effect of differing enforcement styles on regulatory compliance, but enforcement styles influence regulated entities' knowledge of regulations and degree of cooperation with regulators.

evade or comply with regulations. In particular, Chelius and Smith (1987) argue that organizational size (firm size) matters in compliance because large firms are able to have lower costs per unit of output of meeting regulatory requirements (based on the economies of scale), while small firms have higher compliance costs. Regulated entities' capacity to comply, such as knowledge of rules or resources, is also a significant factor that can affect compliance (Winter and May 2001). Previous studies have considered how regulated entities' perceptions of regulation, such as perceived fairness or reasonableness of regulations (May 2005; Winter and May 2002), perceived legitimacy of regulation (Amirkhanyan, Meier, and O'Toole 2016), and the importance of reputation with others (May 2005) can affect regulatory compliance.

Scholars also have addressed the regulatees' motivations behind compliance (May 2005). Winter and May (2001), for example, suggest there are three types of motivation for compliance—calculative, normative, and social motivations—and these motivations play a significant role in compliance. Based on the logic of calculated motivations, organizations comply with regulations when the benefits of compliance exceed the costs of compliance (Becker 1968; Stigler 1970; Winter and May 2001). Normative motivations are based on the regulated entities' "sense of moral duty" and agreement with the purpose of regulation (Burby and Paterson 1993; Winter and May 2001, 677). This perceived obligation is based on internalized values of regulation, and it encourages organizations to have a strong sense of "duty to comply" with regulation (Winter and May 2001, 678). Social motivation for compliance comes from "the desire of the regulated to earn the approval and respect" of the people with whom they interact

(Grasmick and Bursik 1990; Winter and May 2001, 678). The interaction between regulators and regulated entities can influence social motivations by fostering shared expectations of what are the acceptable levels of compliance (Winter and May 2001).

More recently, a small but important section of literature focuses on whether organizational ownership makes a difference in regulatory compliance. Konisky and Teodoro (2016) theorize how the logic of compliance can vary across public and private organizations. In the context of environmental policy, they argue that the costs of violation can be greater for for-profit firms than for governmental agencies because firms are involved in more immediate market competition and violation can reduce future market share and harm revenue (Badrinath and Bolster 1996; Karpoff, Lott, and Wehrly 2005).[13] Based on this logic, they expect that governmental agencies are less likely to be influenced by competition from the market and therefore more likely to commit regulatory violations than private firms (Konisky and Teodoro 2016).

The underlying assumption of Konisky and Teodoro's (2016) argument is that public organizations do not face immediate competition for market share while private organizations do. It might be true for certain policy areas where direct economic markets for outputs are absent or limited (e.g., clean air or clean water); organizations under this condition often enjoy monopoly status and do not have strong incentives to respond to the market.[14] In other policy areas, such as healthcare and education, however, mixed

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[13] The cost of violation can be defined as "a function of the risk of being penalized, the direct costs of a penalty imposed by the regulator, and any indirect costs that follow from violations" (Konisky and Teodoro 2016, 562).

[14] Utility regulation rewards investment so that higher costs generate higher profits given current price regulation, as long as the costs are included in the rate base.

public, nonprofit, and for-profit markets for outputs exist, and public organizations may face market pressure like their private counterparts do. For instance, public nursing homes compete with nonprofit and for-profit nursing homes in the elderly healthcare market to attract more clients and increase market share. If public facilities violate health regulations and lower service quality, they can be penalized by poor evaluations from clients and by sanctions from political authorities. Despite its importance, there is a lack of theoretical and empirical attention to the question of whether public organizations more or less comply with regulation when competition exists.

### 2.3. Regulatory Compliance and Market Competition

Market competition can affect regulated entities' motivations and behaviors toward regulation by increasing the costs of violation. In a highly competitive market, service providers who frequently violate regulations or lower their service quality can be replaced easily by other providers who perform similar jobs. In healthcare, clients in a highly competitive market can move to other health agencies when they learn their agencies have violated health standards and have decreased service quality. It means that regulatory violations can be easily punished in a highly competitive market. A high chance of being replaced under competitive markets increases the costs of violation, thus encouraging organizations to comply with regulations.

By contrast, in a highly monopolistic market, it is relatively hard for clients to move to other agencies because only a few providers offer services. Even if service providers violate regulations and lower service quality, clients have no choice but to

stay. Limited competition may make clients more tolerant of regulatory violations and lower quality. The reduced likelihood of being punished by clients can significantly decrease the costs of violation; therefore, organizations are more likely to violate regulations when they enjoy monopolistic status.

Although the theory is clear that market competition increases service quality and improves consumer utilities, the actual impact of market competition is ambiguous. There is a growing empirical literature on the effect of competition on service quality, but empirical findings are not uniform. For hospitals, some studies find that high competition leads to increased quality whereas some find the opposite (for a review, see Gaynor 2006). For nursing homes, studies generally find that increased market competition leads to reduced quality. Zinn (1994), for example, shows that high levels of market concentration (when the market share is concentrated in a few large facilities) are related to higher quality service. This finding suggests that less competition leads to high service quality, thereby supporting the notion that enhanced competition may have a detrimental impact on service quality. This unexpected result "may reflect other structural characteristics of the nursing home market that diminish the opportunity for the supplier to exert power in a concentrated market" (Zinn 1994, 573). For example, healthcare is categorized as "a reputation good that is sold in monopolistically competitive markets" within a certain area (Pauly and Satterthwaite 1981, 489), and this unique characteristic might play a role in the nursing home market.[15]

[15] Monopolistic competition is a type of imperfect competition. Providers differentiate their services from others using branding or quality, but they are not perfect substitutes.

Using data from Wisconsin, Nyman (1988) examines how competition affects nursing home expenditures on patient care. His study shows that a nursing home in under-bedded markets is likely to spend more money on each patient if there is competition for patients. Although market competition is not the main interest of the research, Grabowski (2001) shows that market competition does not have a significant relationship with staffing quality and the percentage of residents with bedsores. Pointing out that nursing homes have competed against other community-based long-term facilities, Bowblis (2012) investigates how nursing home market structure and the expansion of assisted living facilities affect nursing home quality. Using data from Ohio, he finds that a greater supply of nursing homes can lead to lower quality, and assisted living facility market structure has a mixed effect on nursing home quality.

While the theory suggests that market competition can make organizations compete on service quality and comply more with regulations, many studies have shown mixed results. The mixed findings may be partly due to the failure to consider different motivations for regulatory compliance across public, nonprofit, and for-profit organizations. I argue that market competition significantly affects regulatory compliance, but its effect applies differently across public, nonprofit, and for-profit organizations. Specifically, market competition can change the costs of violating regulations for public, nonprofit, and for-profit organizations differently; therefore, these organizations are more or less likely to comply with regulations under market competition.

## 2.4. Theoretical Explanations

### 2.4.1. Public organizations: A race to the top

Public organizations are established by law and funded by governments, while for-profit organizations are owned by shareholders and rely on profits. Public organizations also face a complex political environment comprising diverse stakeholders, such as elected officials, oversight agencies, professional peers, the media, and the general public (Rainey 2009). Due to the fundamental differences in the political environment and funding sources, public organizations have motivations for regulatory compliance different from those of private organizations. Specifically, public organizations are more likely to comply with regulations compared with their for-profit counterparts, and market competition can increase their compliance by increasing the costs of violation.

First, public organizations tend to care more about maintaining legitimacy, while for-profit organizations are more concerned with the opinions of stakeholders (Johansen and Zhu 2014). Public organizations are more likely to be committed to government mandates and rules, including regulations (Amirkhanyan, Meier, and O'Toole 2016). In addition to concerns about their own legitimacy, public organizations may view the regulatory authorities they are dealing with as having a legitimate right to dictate their behaviors (Gerstein 1970; Tyler 1990). Public organizations therefore are more likely to comply with regulations compared with their private counterparts.

Second, public organizations may have a higher sense of duty to comply with government regulations than for-profit organizations; therefore, they tend to comply

more with regulations. Consistent with this expectation, a substantial amount of public service motivation (PSM) literature has suggested that public employees are more likely to be guided by values of ethics compared with their private counterparts (Crewson 1997; Houston 2006; Perry and Wise 1990). Higher PSM in the public sector may foster the perceptual costs of violation and increase the likelihood of compliance.

Third, reputation-based theories suggest that building a good reputation is an important way of maintaining external support for a public agency, and reputational considerations affect their behaviors (Carpenter 2010; Carpenter and Krause 2012).[16] Public organizations have a greater motivation to comply with regulations because meeting basic service requirements set by regulation is the first step toward a good reputation and positive image of the organization. Moreover, a good reputation can result in more autonomy and additional funding.

As market competition increases, public organizations may feel the need to justify their existence and take responsibility for their actions. Public organizations under this pressure are more likely to make efforts to build a good reputation and signal to political actors that they are doing something worthy of their positions; otherwise, they can be privatized. Under increased market competition, maintaining good regulation and broad support from stakeholders becomes more important for public organizations.

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[16] "Reputations are composed of symbolic beliefs about an organization—its capacities, intentions, history, mission—and these images are embedded in a network of multiple audiences" (Carpenter 2010, 33). Carpenter (2010) suggests there are four types of reputation: performance reputation, moral reputation, procedural reputation, and techinical reputation. Agenices have to choose which type of reputation will be their priority (Carpenter 2010).

Violating regulations can do more damage to the reputation of public organizations than for-profit firms because a bad reputation will prevent public organizations from gaining broad support from external actors. Violations also can damage the reputation of political overseers, which leads to the lack of political support for public agencies. Under increased market competition, losing support from public and political actors can jeopardize the existence of public organizations (they can be privatized or sold off). The costs of violation for public organizations are expected to be higher than those of for-profit organizations under increased competition.

Violating regulations can reduce government funding significantly as well as damage reputation. Given that a large portion of funding comes from the government, the costs of violation can be much larger for public organizations than for their private counterparts. In a competitive market, attracting clients becomes more difficult for service providers, and public providers in this condition tend to rely more on government funding. Losing government funding can be riskier, and the costs of violation become greater for public organizations. Based on the discussion, I expect that public organizations are more likely to comply with regulations compared with their for-profit counterparts as competition increases.

Hypothesis 2-1a. Public organizations commit fewer regulatory violations than for-profit organizations.

Hypothesis 2-1b. Public organizations are less likely to violate regulations than for-profit organizations as market competition increases.

### 2.4.2. Nonprofit organizations: A race to the top

Nonprofit organizations are driven by market forces and public values (Johansen and Zhu 2014), and they have mixed motivations. On the one hand, nonprofit organizations need to demonstrate they serve public values to qualify for a tax exemption (Boris and Steuerle 2006). On the other hand, they are concerned with performance to attract donors and clients. Due to this unique characteristic, nonprofit organizations must deal with market pressure and political constraints.

High levels of market competition amplify the signal from the market and motivate nonprofit organizations to be more responsive to market forces. Their strategies to deal with market competition, however, are likely to differ from those of for-profit organizations given the different costs of violation for each sector. The costs of violation for nonprofit organizations can be much larger than that of for-profit organizations because of their unique legal status. Nonprofit organizations may lose their tax-exempt status when detected, and the loss of tax-exempt status can bring severe consequences to their financial status. Donations can be reduced because donors will be unable to receive a tax deduction for their gifts to the nonprofit organization and they will doubt the legitimacy of the organization. In addition, funding from the government can decrease when a nursing home violates regulations. Nonprofit organizations want to avoid situations that put their tax-exempt status in jeopardy or harm their financial status.

Violations can damage not only the reputation of the nonprofit organization but also the reputation of its governing board. A good reputation plays a crucial role in triggering donations and volunteer participation in the nonprofit sector (e.g., Brown and

Slivinski 2006; Mews and Boenigk 2013; Sarstedt and Schloderer 2010). Maintaining a good reputation becomes more important in a competitive market because a bad reputation makes it harder for nonprofits to fundraise. Due to these detrimental costs of violating regulations, nonprofit organizations are more likely to comply with regulations compared with for-profit organizations as competition increases.

Different predominate values between nonprofit and for-profit organizations also lead to different strategies for handling competition. While for-profit organizations have more incentives to cut costs rather than improve service quality, nonprofit organizations are more likely to care about service quality (Eggleston and Zeckhauser 2002). In the context of elderly healthcare, nonprofit providers are more "patient centered" and tend to put more value on the well-being of patients; these characteristics can "minimize agency problems" and improve service quality (Amirkhanyan, Kim, and Lambright 2008, 329). In contrast, for-profit providers prioritize profit maximization over other values. When competition increases, organizations in each sector are likely to focus on their core values (quality for nonprofits vs. profit for for-profits). Consequently, nonprofit facilities are likely to improve service quality and comply with regulations, while for-profit facilities tend to emphasize cost savings as a tool for profit maximization under increased market competition.

Last, nonprofits tend to cultivate quality and carve out unique market niches so they can buffer against direct competition with others. For nursing homes, for-profit facilities are in the majority, and nonprofit facilities may target high-end clients to avoid direct competition with for-profits. To attract affluent clients (mostly private insurance

clients), the service quality needs to be high to meet the expectations of high-end clients. Nonprofit facilities therefore have greater motivation to increase the service quality and greater cost of violations compared with their for-profit counterparts. In sum, nonprofit organizations are more likely to comply with regulations compared with for-profit firms as competition increases.

Hypothesis 2-2a. Nonprofit organizations commit fewer regulatory violations than for-profit organizations.

Hypothesis 2-2b. Nonprofit organizations are less likely to violate regulations than for-profit organizations as market competition increases.

### 2.4.3. For-profit organizations: A race to the bottom

While public and nonprofit organizations aim to serve the public interest, for-profit organizations are designed to obtain profits. Private ownership rewards managerial decisions that enhance shareholder value (Berg, Lin, and Tsaplin 2005), whereas pursuing profits is not the priority of public and nonprofit organizations. Given their market-driven nature, for-profit organizations are more sensitive to market pressures and respond to incentives that increase profits compared with public or nonprofit organizations.

When markets become competitive, for-profit organizations tend to control service costs to be efficient (Johansen and Zhu 2014). The increased competition provides greater incentives for for-profit organizations to maximize marginal profits and the total revenue generated from service production by reducing the service costs

(Johansen and Zhu 2014). Under pressure for efficiency, one way to reduce service costs is to lower the service quality and save the costs of compliance. Although public and nonprofit organizations have incentives to respond to market competition, they have relatively fewer motivations for efficiency due to "the weak link between service outputs and marginal profits" (Johansen and Zhu 2014, 163). As market competition increases, the likelihood of violating regulations increases more for for-profit organizations than for public and nonprofit organizations.

For-profit organizations have more motivation to reduce service costs than public and nonprofit organizations because the latter enjoy a cost advantage due to government funding and tax exemptions whereas for-profits do not (Fischer, Wilsker, and Young 2011). For-profit firms instead primarily rely on profits for their funding. In addition to higher motivations to reduce service costs, for-profit organizations have more autonomy and flexibility in managing costs, whereas public organizations tend to have more rules and procedures to adjust the service costs (Rainey 2009). In addition, public and nonprofit organizations often have to provide specialized services to serve specific groups of clients (e.g., low-income, disabled clients), which makes it difficult for them to control service costs (Amirkhanyan, Kim, and Lambright 2008). In contrast, for-profit organizations have more autonomy in selecting customers and managing their costs.

Competition may incentivize for-profits to decrease the service costs to gain a comparative cost advantage over others. Particularly in healthcare, extensive information asymmetry places limits on consumer sovereignty because it is hard for most patients to judge the skills of practitioners or how much healthcare they need. For-profit facilities

may have incentives to take advantage of this information asymmetry and lower the service quality to reduce costs.[17] This incentive can be greater in an extremely competitive market because for-profits try to survive in the market by improving cost efficiency.[18] Information asymmetry also exists in the public and nonprofit sectors, but public and nonprofit facilities are less likely to reduce their quality compared with for-profits because they have additional costs to pay (e.g., reputational costs).

For-profit organizations not only have greater incentives to reduce costs but also have fewer motivations to comply with regulations in a comparative market compared with public and nonprofit organizations. Government funding and donations are not the primary funding sources for for-profit organizations. For-profits have relatively low levels of reputational costs because they mainly respond to shareholders rather than multiple stakeholders (e.g., political actors or the general public). These characteristics make the costs of violation smaller for for-profit organizations compared with those of government and nonprofit organizations. For-profits therefore are more likely to commit regulatory violations than public and nonprofit organizations as competition increases.

Hypothesis 2-3a. For-profit organizations commit more regulatory violations than public or nonprofit organizations.

Hypothesis 2-3b. For-profit organizations are more likely to violate regulations than public or nonprofit organizations as market competition increases.

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[17] If there is no information asymmetry, customers would leave for-profits when they lower the quality.
[18] The transaction costs of moving are high given the age and often the fragility of the clients.

## 2.5. Research Context

This chapter tests the relationship between market competition and regulatory compliance in public, nonprofit, and for-profit organizations in the context of U.S. nursing homes. Nursing homes make an ideal case to study regulatory compliance and sector differences for the following reasons. First, elderly healthcare is substantively an important policy area given the increasing elderly population. The number of people ages 65 and older in the United States is expected to more than double from 46 million (in 2014) to over 98 million by 2060 (Population Reference Bureau 2015). Nursing homes have been key providers of long-term care, and the demand for nursing home cares will continue to increase in an aging society.

Second, all nursing homes face a "federally mandated and state-administrated regulatory regime" in the healthcare market (Amirkhanyan, Meier, and O'Toole 2016, 2). With oversight from the federal government, states have responsibilities to oversee the regulatory compliance of nursing homes. All nursing homes must meet the federal nursing home standards and comply with state inspections to remain eligible for Medicare and Medicaid payments. Healthcare inspection results are important because not only are they associated with nursing home eligibility but also they can affect payment rates and other policies in the Medicaid program. This regulatory regime applies to all public, nonprofit, and for-profits nursing homes regardless of their legal ownership status, which allows comparing how public, nonprofit, and for-profit facilities deal with regulations differently. External measures of healthcare inspection results are publicly available.

Third, public, nonprofit, and for-profit nursing homes provide similar services (elderly healthcare), but their legal ownership varies (see Figure A.1 in the Appendix). The coexistence of all three sectors delivering similar services means all facilities compete in the same market. This service delivery setting enables testing of the effect of ownership and competition by holding constant any service type effects.[19]

## 2.6. Data and Methods

This study combines two archival datasets. First, I use the 2012–2016 Nursing Home Compare (NHC), a national administrative database by CMS. These data were created as part of the quality assessment and certification process of healthcare providers, and they include the latest record of inspection for each nursing home. State governments enforce quality standards and evaluate a nursing home's compliance with regulations, quality of care, facility practices, physical environments, etc. State inspectors visit nursing homes every 9–15 months. NHC is unbalanced facility-inspection level panel data. The dataset includes various nursing home characteristics, such as ownership status, the number of beds and residents, staffing information, and hospital affiliation.

The second dataset comes from the 2012–2016 American Community Survey (ACS) by the U.S. Census Bureau. The ACS dataset includes various variables about

[19] Unlike nursing homes, hospitals are more likely to compete in a segmented market based on the specialization. Children's hospitals, for example, do not directly compete with orthopedic specialty hospitals because they have different patients and provide different treatments.

population characteristics, such as the percentage living in poverty, the percentage of elderly population, and the racial composition in each county.

This study estimates a series of statistical models to identify the effect of market competition on regulatory compliance across public, nonprofit, and for-profit nursing homes. To test my hypotheses that public and nonprofit organizations are less likely violate regulations than for-profit organizations, the first model contains nursing home ownership, market competition, and various controls at the nursing home level and the county level. The second model includes interaction terms between market competition and public or nonprofit nursing homes to test sector differences in facing market competition. For-profit nursing homes are the reference groups in the analyses. I estimate models of the following form:

$$V_{i,t} = \alpha_{i,t} + \beta_1 C_{j,t-1} + \beta_2 G_{i,t} + \beta_3 N_{i,t} + \Gamma F_{i,t} + \Phi E_{j,t} + \tau_s + \delta_t + \varepsilon_{i,t}$$

$$V_{i,t} = \alpha_{i,t} + \beta_1 C_{j,t-1} + \beta_2 G_{i,t} + \beta_3 N_{i,t} + \beta_4 (C_{j,t-1} \times G_{i,t}) + \beta_5 (C_{j,t-1} \times N_{i,t}) + \Gamma F_{i,t} + \Phi E_{j,t} + \tau_s + \delta_t + \varepsilon_{i,t}$$

where $V_{i,t}$ is the number of violations (health deficiencies) that represents regulatory noncompliance; $\alpha_{i,t}$ is a constant; $C_{j,t-1}$ is market competition at the county level; $G_{i,t}$ and $N_{i,t}$ are ownership variables indicating whether a facility is government-owned or nonprofit-owned, respectively; *F* is a vector of facility-level control variables, and *E* is a vector of county-level control variables described above; $\tau_s$ and $\delta_t$ are state fixed effects and year fixed effects, respectively; and $\varepsilon_{i,t}$ is an error term. The state fixed effects are included to capture unseen state level variation such as differences in state

regulatory administration. The year effects capture the year-specific effects, such as changes in federal health policy.

Given that the dependent variable of this study—the number of health deficiencies—is a count variable with a positively skewed Poisson distribution, I use a negative binomial regression. Robust standard errors are clustered by county to address heteroscedasticity. The unit of analysis for this study is the individual nursing home.

## 2.7. Measures

*Regulatory compliance*

To capture the degree of regulatory compliance, I use the number of violations identified during a health inspection, which is recorded as a *health deficiency*. The dependent variable here is the *total number of health deficiencies* of each nursing home. Because the variable is created using the number of deficiencies, the higher values indicate less compliance. Figure A.2 in the Appendix shows the distribution of health deficiencies across public, nonprofit, and for-profit nursing homes.

*Market competition and ownership*

Market competition is measured with the Herfindahl–Hirschman index (HHI) of competition, which used the number of certified beds of nursing homes in a county (Amirkhanyan 2006, 2008; Angelelli et al. 2003; Castle 2005). The HHI is an indicator of the amount of competition among service providers in the industry. The formula of the index is:

$$\mathrm{H} = \sum_{i=1}^{N} s_i^2$$

where $s_i$ represents the market share of the provider $i$ and $N$ is the total number of providers. To create the HHI in the elderly healthcare market at the county level, I first calculate the sum of squared market shares (the number of certified beds) for each nursing home in a county (Amirkhanyan 2006, 2008). This index theoretically varies from 0 to 1; and as the index approaches the value of 1, this displays the least competitive markets with a dominant provider. As the index approaches the value of 0, this indicates that the most competitive market with multiple providers have similar market shares.

After creating the index, I reverse it by subtracting the values from 1, so the higher values reflect higher levels of market competition. Now the indicator ranges theoretically from zero (monopoly) to one (extremely competitive market), with an assumption that long-term care markets evolve and nursing homes compete with one another based on proximity (measured within the same county).

Figures 2.1 and 2.2 show the level of market competition across time and space, respectively. The level of competition does not change very much over time, which suggests that the elderly healthcare market has been sluggish (Figure 2.1). The level of competition varies greatly by county, with high competition in urban areas and low competition in rural areas (Figure 2.2).

**Figure 2.1. Market Competition: Time**

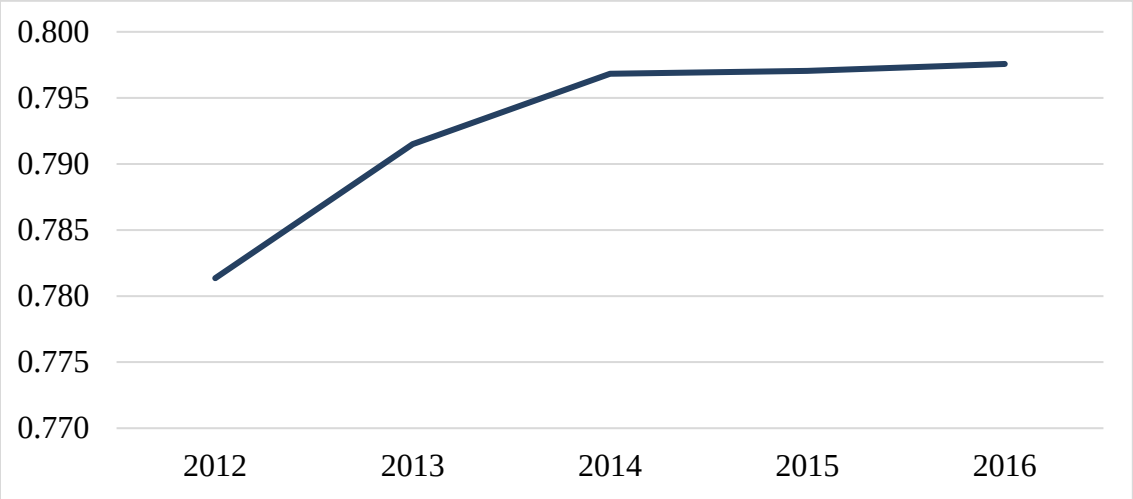
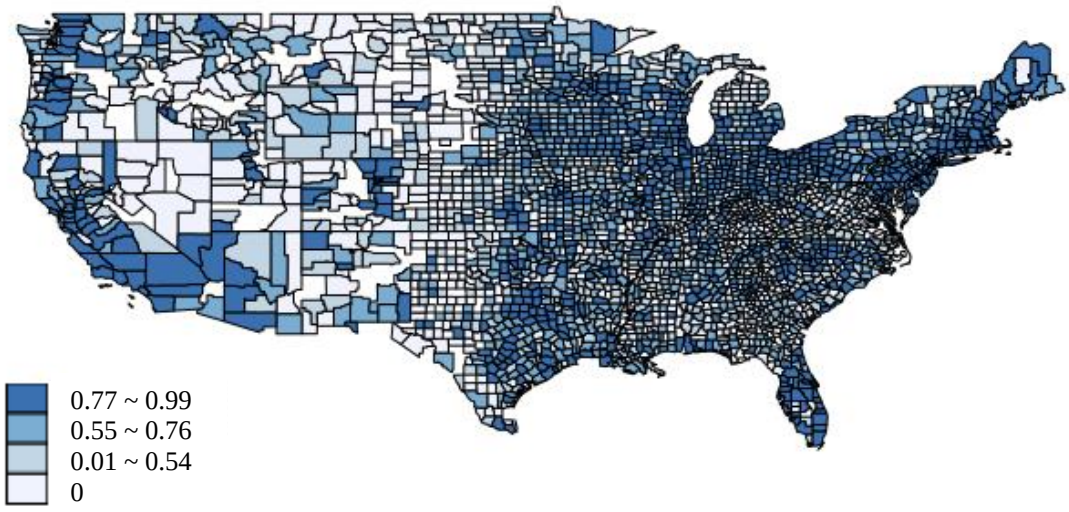



**Figure 2.2. Market Competition: Space**




*Note*. Year = 2016

NHC provides various types of ownership status of sampled nursing homes (see Figure A.1 in the Appendix). I define the ownership of nursing homes as three dummy variables: public (yes = 1, no = 0), nonprofit (yes = 1, no = 0), and for-profit (yes = 1, no = 0). I use for-profit nursing homes as the reference group.

*Facility-level controls*

The models include various nursing home characteristics that I expect to affect health violations. Previous literature suggests that larger facilities are more likely to comply with regulations because they may have more human and financial resources to spend on compliance (Hanford and Sokolow 1987). To control for facility size, I include the number of certified beds and the number of residents in each nursing home. Capacity for compliance also matters in health deficiencies, and I include total nursing hours per resident per day to control for staffing capacity. To control for facility age, I use a proxy variable—years since approval to provide Medicare/Medicaid. I expect that older facilities more likely to comply with regulations because they tend to have more experience in dealing with health regulations.

Ownership is the key variable of this research, and I also control for whether a nursing home had changed ownership in the last 12 months (yes = 1, no = 0). Certification status is expected to affect regulatory compliance because inspection outcomes are associated with Medicare/Medicaid certifications. I include a categorical variable that represents whether a nursing home is Medicare certified, Medicaid certified, or both. Hospital-affiliated homes indicate nursing homes' affiliation status, coded as "1" if a nursing home affiliated with a hospital and "0" otherwise.

*County-level controls*

In addition to controlling for a variety of characteristics of nursing homes, I include county characteristics to account for environmental factors that might have affected regulatory compliance. I expect that demographic and economic characteristics at the county level affect nursing homes' behaviors. Previous literature has suggested that population density is a key predictor of health quality, and I consider population density per square mile (in 1,000s). Percent of elderly population is also an important factor to consider given that senior citizens are the main customers of nursing homes. I expect that nursing homes in a county with more elderly citizens are more likely to comply with regulations to attract more residents. The percent of white population is included to account for a county's racial composition, and the percent of population without health insurance is included to capture insurance coverage at the county level.

To control for economic characteristics of each county, the percent of unemployed population (unemployed population aged 16 years and over in the labor force), the percent of population in poverty (poverty status is determined as living below the poverty line), and the Gini index of income inequality are included. Table A.1 in the Appendix shows descriptive statistics for all variables.

## 2.8. Findings

Table 2.1 reports the estimated results from the negative binomial model with state fixed effects and year fixed effects. The coefficient of public nursing homes is negative and significant, suggesting that public facilities are less likely to have health

deficiencies reported compared to their for-profit counterparts holding all other factors constant. Similarly, the coefficient of nonprofit nursing homes is negative and significant, suggesting that nonprofits are less likely to commit regulatory violations compared to for-profits.

Interestingly, the effect size of nonprofit nursing homes is greater than that of public nursing home, implying that nonprofit facilities are less likely to violate compared with public facilities. To test whether there is a significant difference between nonprofit and public facilities, I run the same analysis but set nonprofits as a reference group. The findings show that, compared with public nursing homes, nonprofit nursing homes are less likely to violate regulations (tables are not shown).

Market competition is positively associated with more health deficiencies holding all other factors constant. This result suggests that nursing homes, on average, are more likely to violate regulations under a high level of market competition. The result is counterintuitive but consistent with previous research, showing that less competition leads to higher service quality in nursing homes (e.g., Zinn 1994).

The number of certified beds and the number of residents show an opposite pattern: having more beds is positively associated with more deficiencies, while having more residents in beds is negatively related to deficiencies. This is possible because these two variables capture nursing home size and the effect of one variable controlling for the other. Nursing homes that spend more time on their clients are less likely to violate health regulations. When nursing homes change their ownership status, the likelihood of committing deficiencies increases. Nursing homes certified by Medicare

only are associated with a lower likelihood of committing deficiencies compared with nursing homes certified by both Medicaid and Medicare. A nursing home's age does not have any significant relationship with health deficiencies.

In addition to the nursing home characteristics, county characteristics also have a significant relationship with the likelihood of committing deficiencies. Population density, elderly population, and white population show a negative association with deficiencies, suggesting that nursing homes in an area with high population density, more elderly citizens, and white population are less likely to commit violations. Poverty population and the Gini index of income inequality positively related to the likelihood of committing deficiencies. This finding suggests that nursing homes are more likely to have a higher level of health violation in an area where the poverty rate and income inequality are high.

**Table 2.1 Regulatory Compliance Across Public, Nonprofit, and For-profit Organizations**

| Dependent variable = The number of health deficiencies | | |
|---|---|---|
| | Coef. | Robust SE |
| Public home | –0.142*** | (0.020) |
| Nonprofit home | –0.213*** | (0.013) |
| Lagged market competition | 0.073* | (0.032) |
| Number of certified beds | 0.004*** | (0.000) |
| Number of residents | –0.003*** | (0.000) |
| Staffing hours | –0.105*** | (0.008) |
| Years since certification | 0.000 | (0.000) |
| Changed ownership | 0.130*** | (0.021) |
| Certification: Medicare only | –0.281*** | (0.028) |
| Certification: Medicaid only | –0.034 | (0.033) |
| Hospital affiliated home | 0.024 | (0.023) |
| Population density | –0.035*** | (0.005) |
| Elderly population | –0.007** | (0.002) |
| White population | –0.003** | (0.001) |
| Population without health insurance | 0.003 | (0.003) |
| Unemployed population | –0.018+ | (0.010) |
| Poverty population | 0.005+ | (0.003) |
| Gini index of income inequality | 0.796+ | (0.446) |
| Constant | 1.690*** | (0.238) |
| State fixed effects | Yes | |
| Year fixed effects | Yes | |
| AIC | 334,539.72 | |
| BIC | 335,195.14 | |
| *N* | 58,595 | |

*Note*. Coefficients from negative binomial regression analysis are reported. Robust standard errors are clustered by county and shown in parentheses. The reference group for public and nonprofit nursing homes is for-profit homes. The reference group for certification status is nursing homes certified by both Medicare and Medicaid. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 2.2 demonstrates how the effect of market competition varies across public, nonprofit, and for-profit nursing homes. To compare whether regulatory compliance under market competition diverges across public, nonprofit, and for-profit nursing homes, I include interaction terms between market competition and ownership variables (public and nonprofit nursing homes). The reference group therefore is for-profit homes in the analysis. In the base regression, the effect size of market competition on violations in the for-profit sector (when public dummy = 0 and nonprofit dummy = 0) is 0.160. This means market competition positively relates with having more deficiencies in the for-profit sector.

The interaction term between public nursing homes and market competition is statistically significant and negative. This result suggests public nursing homes are less likely to commit a health violation compared with for-profit homes as market competition increases. Similarly, the interaction between nonprofit nursing homes and market competition shows a significantly negative sign, demonstrating that for-profit nursing homes are less likely to comply with health regulations under high levels of market competition compared with nonprofit facilities. These findings are especially interesting given the theory predicts competition should work in the private sector. These findings remain the same when I control for the lagged number of health deficiencies (see Table A.2. in the Appendix).

**Table 2.2. Regulatory Compliance Under Market Competition Across Sectors**

| Dependent variable = The number of health deficiencies | | |
|---|---|---|
| | Coef. | Robust SE |
| Public home | 0.040 | (0.044) |
| Nonprofit home | –0.001 | (0.040) |
| Lagged market competition | 0.160*** | (0.037) |
| Public home × Lagged market competition | –0.256*** | (0.058) |
| Nonprofit home × Lagged market competition | –0.262*** | (0.049) |
| Number of certified beds | 0.004*** | (0.000) |
| Number of residents | –0.003*** | (0.000) |
| Staffing hours | –0.104*** | (0.008) |
| Years since certification | 0.000 | (0.000) |
| Changed ownership | 0.130*** | (0.021) |
| Certification: Medicare only | –0.275*** | (0.029) |
| Certification: Medicaid only | –0.047 | (0.033) |
| Hospital affiliated home | 0.005 | (0.024) |
| Population density | –0.034*** | (0.005) |
| Elderly population | –0.008** | (0.002) |
| White population | –0.003* | (0.001) |
| Population without health insurance | 0.002 | (0.003) |
| Unemployed population | –0.017+ | (0.010) |
| Poverty population | 0.005+ | (0.003) |
| Gini index of income inequality | 0.774+ | (0.443) |
| Constant | 1.607*** | (0.235) |
| State fixed effects | Yes | |
| Year fixed effects | Yes | |
| AIC | 334,465.90 | |
| BIC | 335,139.28 | |
| *N* | 58,595 | |

*Note.* Coefficients from negative binomial regression analysis are reported. Robust standard errors are clustered by county and shown in parentheses. The reference group for public and nonprofit nursing homes is for-profit homes. The reference group for certification status is nursing homes certified by both Medicare and Medicaid. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Figures 2.3–2.5 illustrate the predicted number of health deficiencies as market competition changes by sector. The predicted number of deficiencies is calculated using the Monte Carlo simulation technique through the Clarify program (see King, Tomz, and Wittenberg 2000; Tomz, Wittenberg, and King 2003). After simulating parameters 1,000 times, I calculate the predicted values for public, nonprofit, for-profit nursing homes respectively by setting "changed ownership" equal to 0 (no), "certification" equal to 1 (both Medicare and Medicaid), "hospital affiliated" equal to 1 (yes), and all the other control variables at their means. Each figure includes 95% confidence intervals.

Figure 2.3 shows the predicted number of health deficiencies given different levels of market competition for public nursing homes. The plot illustrates that the predicted number of deficiencies for public facilities decreases when competition increases. Public facilities are more likely to comply with regulations when they face a more competitive environment. Nonprofit nursing homes show a pattern similar to that of public nursing homes. In Figure 2.4, the predicted number of health deficiencies for nonprofit facilities decreases as market competition increases. Figure 2.5 depicts how the predicted number of health deficiencies for for-profit nursing homes varies along market competition. For-profit facilities are more likely to violate regulations when competition increases. These findings, in general, confirm the differences in the relationship between market competition and regulatory compliance across the sector.[20]

[20] Public and nonprofit nursing homes are not only better at complying with regulations but also more likely to increase service quality as market competition increases compared with their for-profit counterparts (see Table A.3 in the Appendix).

**Figure 2.3. Regulatory Compliance Under Market Competition for Public Nursing Homes**

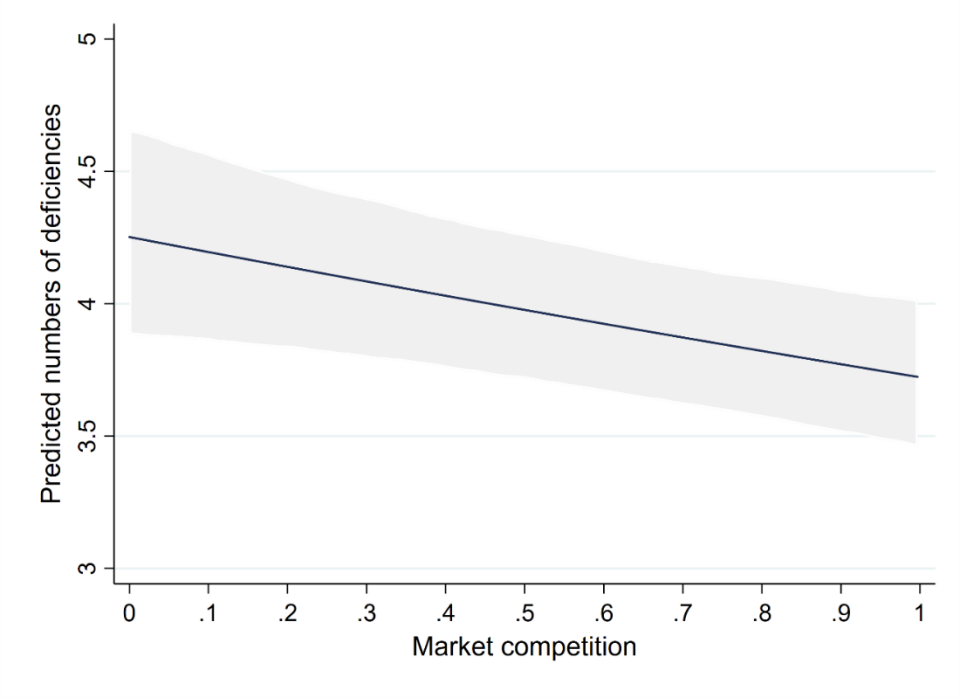



**Figure 2.4. Regulatory Compliance Under Market Competition for Nonprofit Nursing Homes**

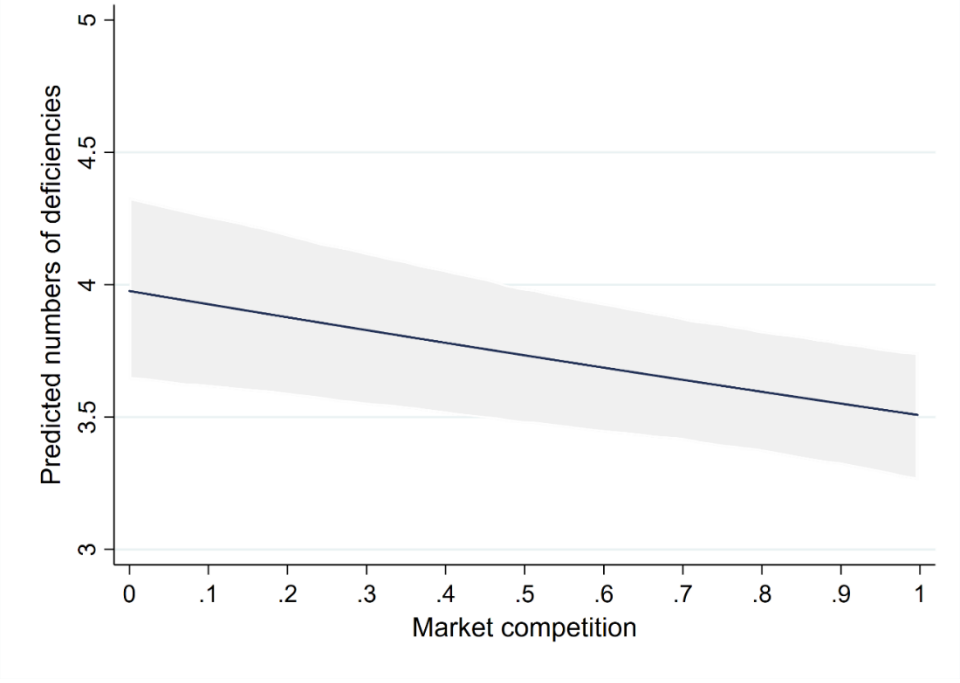
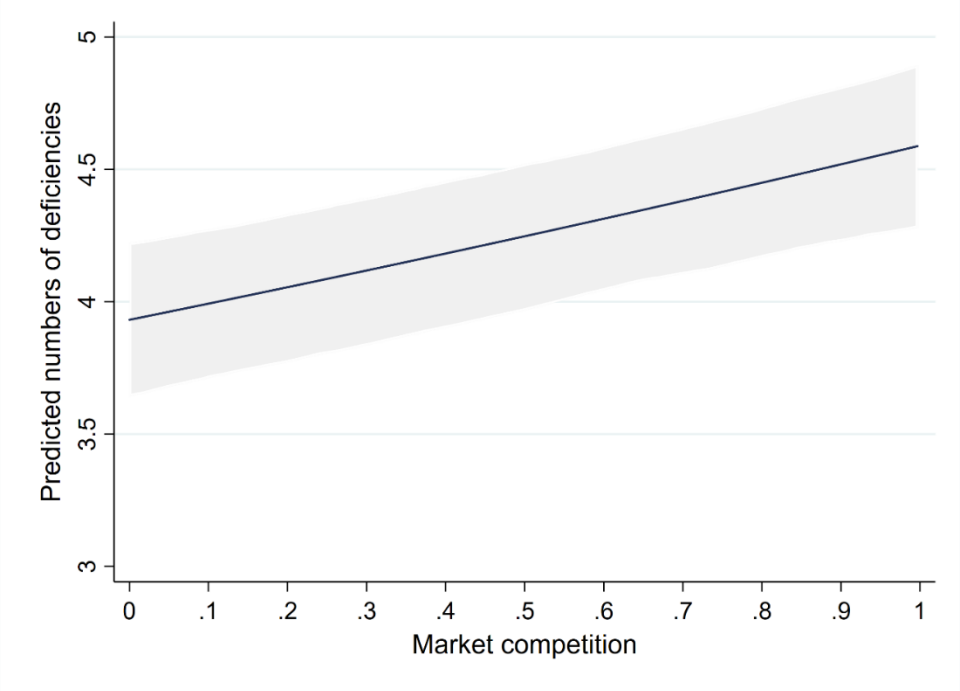


**Figure 2.5. Regulatory Compliance Under Market Competition for For-profit Nursing Homes**




The analysis supports that market competition significantly affects the behavior of nursing homes, but an interesting question remains: who do they think is their competition? For-profit nursing homes, for example, may think they compete with all other facilities (public, nonprofits, and for-profits) in a market, or they may only consider other for-profit facilities as real competitors.

To test this idea, this research investigates the effect of *competition within the sector* on regulatory compliance. I first calculate the HHI for public nursing homes, nonprofit nursing homes, and for-profit nursing homes separately. I then combine these indices to generate a measure of competition within the sector. This measure is also reversed so that high values represent high competition. It is noteworthy that many public nursing homes enjoy a monopoly regarding the within-sector competition because

there are only one or two public nursing homes in a county. Figure A.3 in the Appendix shows the distribution of competition across sectors and competition within the sector.

To test the effect of competition within the sector, I include the interaction between within-sector competition and ownership variables. Table 2.3 shows how competition within the sector shapes regulatory compliance across public, nonprofit, and for-profit facilities. The interaction term between public homes and competition within the sector is not statistically significant; however, the interaction between nonprofit and competition within the sector is statistically significant and negative. This finding suggests nonprofit nursing homes are less likely to violate regulations compared with for-profit homes and regardless of competition type.

**Table 2.3. Regulatory Compliance Under Market Competition Within the Sector**

| Dependent variable = The number of health deficiencies | | | | |
|---|---|---|---|---|
| | Coef. | Robust SE | Coef. | Robust SE |
| Public home | –0.128*** | (0.022) | –0.094** | (0.029) |
| Nonprofit home | –0.205*** | (0.013) | –0.066* | (0.026) |
| Lagged competition within sector | 0.053* | (0.025) | 0.120*** | (0.030) |
| Public home × Lagged competition within the sector | | | 0.011 | (0.054) |
| Nonprofit home × Lagged competition within the sector | | | –0.221*** | (0.038) |
| Number of certified beds | 0.004*** | (0.000) | 0.004*** | (0.000) |
| Number of residents | –0.003*** | (0.000) | –0.003*** | (0.000) |
| Staffing hours | –0.105*** | (0.008) | –0.104*** | (0.008) |
| Years since certification | 0.000 | (0.000) | 0.000 | (0.000) |
| Changed ownership | 0.130*** | (0.021) | 0.131*** | (0.020) |
| Certification: Medicare only | –0.278*** | (0.029) | –0.277*** | (0.028) |
| Certification: Medicaid only | –0.036 | (0.033) | –0.039 | (0.033) |
| Hospital affiliated home | 0.024 | (0.023) | 0.010 | (0.023) |
| Population density | –0.035*** | (0.005) | –0.035*** | (0.005) |
| Elderly population | –0.008** | (0.002) | –0.008** | (0.002) |
| White population | –0.003** | (0.001) | –0.003** | (0.001) |
| Population without health insurance | 0.003 | (0.003) | 0.002 | (0.003) |
| Unemployed population | –0.018+ | (0.010) | –0.018+ | (0.010) |
| Poverty population | 0.005+ | (0.003) | 0.005+ | (0.003) |
| Gini index of income inequality | 0.807+ | (0.443) | 0.804+ | (0.441) |
| Constant | 1.699*** | (0.239) | 1.646*** | (0.237) |
| State fixed effects | Yes | | Yes | |
| Year fixed effects | Yes | | Yes | |
| AIC | 334,542.16 | | 334,463.67 | |
| BIC | 335,197.58 | | 335,137.05 | |
| *N* | 58,595 | | 58,595 | |

*Note.* Coefficients from negative binomial regression analysis are reported. Robust standard errors are clustered by county and shown in parentheses. The reference group for public and nonprofit nursing homes is for-profit homes. The reference group for certification status is nursing homes certified by both Medicare and Medicaid. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

## 2.9. Discussion and Conclusion

Advocates of privatization often argue that private ownership can produce the public goods and services of high quality and low costs on the grounds that private ownership allows the benefits of market competition. Little empirical research demonstrates how market competition affects regulatory compliance and whether private organizations are better service providers than their public counterparts under increased competition. This essay investigates how increased competition influences service providers' regulatory compliance in the elderly healthcare market and whether the mechanism varies across nonprofit, for-profit, and governmental organizations. By doing so, this study shows how successful policy implementation can be initiated and contributes to a better understanding of the sector differences in regulatory compliance.

Evidence from U.S. nursing homes suggests that, on average, market competition fails to lead to greater regulatory compliance. More interestingly, the effect of market competition significantly varies across sectors—public and nonprofit facilities tend to comply more with regulations as market competition increases, whereas for-profit facilities are more likely to violate regulations when they face market competition. Market competition not only promotes compliance with health regulation but also improves service quality among public and nonprofit facilities; however, competition discourages service quality among for-profit facilities (see Table A.3 in the Appendix). These findings challenge the superiority of the private sector and suggest the identification of privatization with the benefits of competition has been misleading (Hart, Shleifer, and Vishny 1997).

This essay contributes to policy implementation theory by adding the role of market competition to widespread literature. Although policy implementation literature has extensively studied what makes successful implementation and what drives higher compliance with regulation, market factors have been missing from the discussion. This study shows that market competition can harm regulatory compliance in the context of elderly healthcare. More importantly, the cross-sector comparison of this research highlights that market competition can be an effective tool to foster compliance for public and nonprofit organizations not for for-profit organizations.

The results of this study also contribute to the public and nonprofit management literature. Unlike the previous studies that cast doubt on the utility of market competition as a mechanism for improving efficiency in the public sector (see Salamon 1993; Van Slyke 2003), this research demonstrates that public and nonprofit organizations are sensitive to market competition. This result indicates that public management literature should take market factors more seriously. The findings also highlight the strong and positive influence market competition has on nonprofit organizations. Nonprofit managers should understand the market mechanism and wisely deal with this external factor. The nuance of the finding needs to be stressed: market competition is not a cure all, but competition among public organizations and competition among nonprofit organizations can produce public policy benefits. In contrast, competition among for-profit firms appears to lower the overall quality of services.

This study provides two practical policy implications for effective service delivery in healthcare. First, market competition can force for-profit organizations to

save on service costs to be efficient, which often leads to more regulation violations and low quality. We need to consider how much we should leave our healthcare service in the private sector. The findings show that market competition can bring side effects for for-profit facilities and suggest that privatization (and market-based reforms) may not be the best solution, at least for long-term care.

Second, policymakers should establish an effective oversight system to promote regulatory compliance of for-profit organizations under market competition. Designing reimbursement systems that encourage for-profits to increase the quality of care can be a solution. Currently, CMS mainly implements deterrent-based enforcement tools, such as fines and decertification, but adopting cooperative regulatory enforcement may also help prevent for-profit providers from committing violations.

This essay provides the theoretically and practically important contributions; however, a few limitations remain and merit future research. First, to measure regulatory noncompliance, this study uses the frequency of violations and does not consider the severity of violations. While the frequency of violations captures the *quantity* of noncompliance, the severity of violations taps the *quality* of noncompliance. CMS provides the scope and severity index, and future research can develop a better measure that captures both the frequency and severity of violations using such information.

Second, regarding market competition, this research focuses on competition among nursing homes rather than competition against other long-term care agencies. Given that an increasing number of other long-term care providers (e.g., home health agencies, community service care, adult day care) are replacing nursing homes in the

elderly health market, competition with different types of providers is worth investigating.

Third, it is worth mentioning the generalizability issue. One important element to consider is the level of information asymmetry. Unlike healthcare with extensive information asymmetry, trash collection service, for example, has relatively less information asymmetry. Less information asymmetry allows citizens to evaluate the service quality better, which may prevent for-profit providers from lowering the service quality in a competitive market.

Another theoretically interesting element to consider when discussing the generalizability is a market structure. The empirical context of this study is U.S. nursing homes, where for-profit facilities are the dominant service providers. For U.S. hospitals, however, nonprofit providers comprise more than half of all hospitals. The difference in the market structure can affect service providers' motivations and behaviors toward regulation. Testing the theory in the hospital context can contribute to the generalizability of the theory.

# 3. MANAGEMENT AND PERFORMANCE IN PUBLIC, NONPROFIT, AND FOR-PROFIT ORGANIZATIONS: AN OLD COMPARISON WITH A NEW APPROACH

## 3.1. Introduction

An important perspective in public administration is that public and private organizations are fundamentally different (Allison 1979; Rainey 2009; Sayre 1958). Extensive theoretical discussions and empirical studies have answered the question of what makes public organizations distinct from private organizations and highlighted the public–private distinction in external environments, organizational structures and processes, employee values and attitudes, performance assessments, and management (e.g., Andrews, Boyne, and Walker 2011; Boyne 2002; Chun and Rainey 2005a, 2005b; Rainey 2009; Rainey and Bozeman 2000; Rainey and Chun 2005). Given that the underlying motivation of public management research is to investigate the ways in which managers promote performance, recent scholarship focuses on how the relationship between management and performance varies between the public and private sector (e.g., Hvidman and Andersen 2013). The debate on the public–private differences has been reframed from "are public organizations different from private organizations?" to "is the impact of management action the same in both sectors?" (Meier and O'Toole 2011, i283).

Recent research has begun to address this question by providing theoretical expectations and empirical evidence on how the impact of management may differ in public and private organizations (Meier and O'Toole 2011), how managerial practices

and decision-making differ across sectors (Andersen 2010; Johansen and Zhu 2014; Nutt 2005), and how performance management and leadership training matters differently in public and private organizations (An et al. 2018; Hvidman and Andersen 2013). Among these, Meier and O'Toole's (2011) theory is promising, particularly in its careful consideration of how internal and external management actions influence performance differently in public and private organizations. Their theoretical expectations, however, remain untested empirically. Acknowledging the importance of this work, this chapter empirically tests whether public, nonprofit, and for-profit managers focus on different management strategies and how managerial actions shape service performance differently using data from more than a thousand top administrators in elderly healthcare.

Based on the extensive scholarly literature on the public–private distinction, this study theorizes that different internal structures (e.g., flexibility of procedures, managerial autonomy, goal ambiguity) lead to different impacts on internal management, while different external circumstances (e.g., competitive pressures, permeability, multiple stakeholders) lead to different impacts on management strategies that deal with environment across sectors. Specifically, internal management may matter more in private organizations than in public organizations because private managers operate under a less formalized structure with more flexibility in personnel procedures. Tapping environmental opportunities and protecting organizations from external shocks can contribute to program performance in general, but the former may be more effective in the private sector while the latter can benefit organizations more in the public sector.

This is because managers in business firms are more likely to be exposed to competitive market pressure that encourages innovation while managers in governmental organizations tend to face more political constraints that often generate more complexity and environmental uncertainty.

This essay advances our understanding of the heterogeneity of managerial impacts providing empirical evidence that the marginal contribution of management strategies on performance varies across the public, nonprofit, and for-profit sector. While previous research mainly highlights *whether* public management differs from private management, the current study examines *how* management affects organizational performance differently across sectors. To do so, this study focuses on tangible managerial practices, such as managing internal operations, searching for new opportunities, and buffering environmental influences. This effort can provide useful practical implications for public and nonprofit managers as well as contribute to the literature. The analysis also contributes to the theories on the public–private distinction by adding nonprofit management. Given the significant increases in public services delivered by nonprofit providers, understanding the distinctive features of nonprofit management can contribute to theory development for public management as well as nonprofit management.

### 3.2. Literature on Public Management and Performance

The question of whether management matters for performance has been extensively answered by many studies in the public management literature (e.g., Lynn,

Heinrich, and Hill 2000a; 2000b; Rainey and Steinbauer 1999; Walker, Boyne, and Brewer 2010), nonprofit management literature (e.g., Johansen and LeRoux 2013; Perkins and Fields 2010; Stone, Bigelow, Crittenden 1999), and business management literature (e.g., Daft 2012; Ren and Guo 2011; Steffensen et al. 2019; Wooldridge, Schmid, and Floyd 2008). In the public management field, O'Toole and Meier's (1999) public management model has been a predominant lens to explain how public managers influence organizational performance. Based on their theoretical propositions, a large number of empirical studies have supported that management makes a difference in the public service delivery process (for a review, see O'Toole and Meier 2011). Specifically, we have learned that managers' efforts to coordinate people and resources inside organizations (Favero, Meier, and O'Toole 2016; O'Toole and Meier 2009), networking with stakeholders in the environment (Akkerman and Torenvlied 2011; Goerdel 2006; Johansen and LeRoux 2013; Meier and O'Toole 2003), managerial quality (Avellaneda 2008; Meier and O'Toole 2002), and managerial stability (O'Toole and Meier 2003b) are key factors to promote performance.

Recently, the main research question in the literature has shifted from "does management matter?" and towards "where and when does it matter?" Recent works on public management have focused on the role of *context* in the link between management and performance (Meier, Rutherford, and Avellaneda 2017; O'Toole and Meier 2014).[21]

[21] Context can be defined as "situational opportunities and constraints that affect the occurrence and meaning of organizational behavior as well as functional relationships between variables" and "context can serve as a main effect or interact with personal variables" (Johns 2006, 386).

Public management studies focusing on context can be divided into three separate groups. The first group has focused on the national context and examined whether the theory developed in the United States can apply to other countries. Empirical findings in the United Kingdom (Andrews, Boyne, and Walker 2006b; Walker and Boyne 2006), Netherlands (Akkerman and Torenvlied 2011; Akkerman, Torenvlied, and Schalk 2012), Columbia (Avellaneda 2008), and South Korea (Chun and Song 2017) have supported the general notion that *management matters*.[22]

The second group has focused on a policy context. Recognizing that most early studies use the context of secondary education, scholars have moved to test the impact of management in various policy areas, such as law enforcement (Kelman, Hong, and Turbitt 2012; Nicholson-Crotty and O'Toole 2004), local governments (Andrews, Boyne, and Walker 2006b; Walker and Boyne 2006), higher education (Akkerman and Torenvlied 2011; Akkerman, Torenvlied, and Schalk 2012), and elderly health care (Amirkhanyan et al. 2018, 2019).

The third group, an important but relatively understudied area, represents organizational context, which includes various structural and behavior elements.[23] Sectoral status can be an important organizational context because it can determine the

[22] An exception is Meier et al. (2015). This study finds that specific management variables matter substantially in the United States but have no impact in Denmark.

[23] O'Toole and Meier (2014) provide theoretical expectations on the role of internal organizational contexts and political and environmental contexts. Specifically, political contexts include unitary versus shared power systems, single or multiple levels, corporatist versus adversarial, and the existence of performance appraisal systems. Environmental contexts represent the extent of complexity, turbulence, and munificence. Internal organizational contexts include the extent of goal clarity and consistency, the degree of organizational decentralization, and the degree of professionalism (O'Toole and Meier 2014).

range of the managers' authority and behavior. Meier and O'Toole's (2011) work provides theoretical expectations that the impact of management can vary depending on the sector. Specifically, Meier and O'Toole (2011) expect that internal management and stabilization efforts should matter more in the public sector, while external management will be more effective in the private sector. They also argue that public managers are more likely to focus on internal management compared with external management, and the optimal ratio of internal to external management efforts will vary depending on the sectors. Empirical support on the different impact of public–private management is rare. Among the few, Hvidman and Andersen (2013) find that performance management improves organizational outcomes in private schools but not in public schools.

### 3.3. The Model of Management, Performance, and Publicness

A wide range of theories and approaches have been applied to the study of public management (e.g., Agranoff and McGuire 2004; Lynn, Heinrich, and Hill 2000a, 2000b; O'Toole and Meier 2011; Van Dooren, Bouckaert, and Halligan 2015; Walker, Boyne, and Brewer 2010). The foundational approach of this study to examine the relationship between management and performance is the management-performance model created by Meier and O'Toole (for a review, see O'Toole and Meier 2011). The advantage of the model is that it allows us to generate specific hypotheses about the effects of specific managerial behaviors on performance. The initial model can be expressed as:

$$O_t = \beta_1(S_i + M_1)O_{t-1} + \beta_2\left(\frac{X_t}{S_x}\right)\left(\frac{M_3}{M_4}\right) + \varepsilon_t$$

Where $O_t$ is performance; $O_{t-1}$ is lagged performance; $M_1$ is internal management; $M_3$ is a managerial effort to exploit the environment; $M_4$ is a managerial effort to buffer the organization from environmental shocks; $S$ is stability ($S_i$ indicates internal stability while $S_x$ represents environmental stability or stabilizers); $X_t$ is a vector of environmental factors; and $\varepsilon_t$ is an error term. $M_3$ and $M_4$ are often combined as $M_2$ (the ratio of $\frac{M_3}{M_4}$), which represents the managerial effort to network with the environment (O'Toole and Meier 2011).

Based on this general model, Meier and O'Toole (2011) provide theoretical expectations for public–private differences in the link between management and performance. Additional models include subscripts "*g*" (government), "*n*" (nonprofit), and "*b*" (business) to discuss how public management is different from nonprofit and for-profit management.

Public model: $O_{gt} = \beta_{g1}(S_{gi} + M_{g1})O_{gt-1} + \beta_{g2}\left(\frac{X_{gt}}{S_{gx}}\right)\left(\frac{M_{g3}}{M_{g4}}\right) + \varepsilon_{gt}$

Nonprofit model: $O_{nt} = \beta_{n1}(S_{ni} + M_{n1})O_{nt-1} + \beta_{n2}\left(\frac{X_{nt}}{S_{nx}}\right)\left(\frac{M_{n3}}{M_{n4}}\right) + \varepsilon_{nt}$

For-profit model: $O_{bt} = \beta_{b1}(S_{bi} + M_{b1})O_{bt-1} + \beta_{b2}\left(\frac{X_{bt}}{S_{bx}}\right)\left(\frac{M_{b3}}{M_{b4}}\right) + \varepsilon_{bt}$

Internal management ($M_1$) represents how managers operate within an organization to promote overall program performance. The theory suggests that the range (or the variation) of managerial actions inside organizations in the public sector is more limited than that of nonprofit and for-profit sectors. This is because managers in government-owned organizations have more limited incentives to offer employees, more

rules and procedures to follow, and agency missions restrict managerial flexibility (Chun and Rainey 2005a; Meier and O'Toole 2011; Rainey 2009).

Nonprofit managers tend to have less rules and more flexibility compared with public managers (Feeney and Rainey 2009), but they have less available options compared with for-profit managers. The effect of monetary compensation, for example, is relatively limited given that volunteer workforces are prevalent in the nonprofit sector (Brooks 2002),[24] while for-profit firms have various financial and nonfinancial rewards. In addition, managers in business firms are more likely to have discretion in allocating resources and managing people compared with public and nonprofit managers.

Proposition 1. $\sigma(\mathrm{M_{b1}}) > \sigma(\mathrm{M_{n1}}) > \sigma(\mathrm{M_{g1}})$

Organizations are open systems that cope with their external circumstances. Environments can provide both potential benefits and threats and the way that managers deal with their environments can directly influence their managerial effectiveness (Meier and O'Toole 2008). Regarding exploiting the environment ($M_3$), governmental organizations are more likely to be constrained by agency missions and political authorities, and managers in the public sector have relatively fewer options for searching for new opportunities (Meier and O'Toole 2011). For instance, innovation often requires

[24] A large body of literature on prosocial motivation in the public sector (e.g., PSM) has suggested that the effect of monetary compensation is weak or nonexistent in public organizations (e.g., Kellough and Lu 1993). Scholars also have suggested that monetary compensation, such as performance pay, may have unintended adverse consequences in the public sector where multiple principals exist and performance is not easy to measure (Langbein 2010).

more funds but spending more money is associated with greater levels of oversight and evaluation in the public sector.

An administrative hierarchy also exists in the nonprofit sector. Nonprofit boards are responsible for oversight of their organizations and shape their institutional direction (Brooks 2002), and this system often limits managers' tools to exploit new opportunities. For-profit managers, however, have a greater range of options available in terms of exploiting the environment (e.g., adopting new technologies or investing in other business) because they are less likely to face political oversight compared to public managers. Based on this logic, I expect that the range of managerial options in exploiting the environment would be larger in the for-profit sector compared with the public and nonprofit sectors.

Proposition 2. $\sigma(M_{b3}) > \sigma(M_{n3}) > \sigma(M_{g3})$

Following the definition of Meier and O'Toole (2008, 933), this paper refers to "any of these influences that reduce the impacts of environmental forces on organizational or performance results as buffers" and "the dynamic of reducing such influences as buffering." Buffering ($M_4$) includes several strategies, such as (1) building a barricade that protects internal operations from external forces, (2) a selective filtering of external factors and deciding what can and cannot be allowed to enter the internal operation, and (3) dampening the impact of external shocks (Meier and O'Toole 2008; O'Toole and Meier 2003a). Public organizations have massive functions to buffer environmental changes (O'Toole and Meier 2003a).

Public managers may be able to use the well-established structures of governmental organizations (e.g., formal rules and procedures) to protect the organization's core functions from external shocks (Thompson 1967) while private managers may not. The range of managerial options in buffering the environment will be greater in the public sector compared with the nonprofit and the for-profit sectors (see Meier and O'Toole 2011).

Proposition 3. $\sigma(M_{g4}) > \sigma(M_{n4}) > \sigma(M_{b4})$

Different ranges of managerial options may lead to different effect sizes on performance. To test this idea, I simplify the interactive model to a linear model to reduce complexity and generate empirically testable hypotheses. Then, I add interactive terms between management and ownership. Accordingly, a simplified version of the model and interactive model can be depicted by the following:

$$O_t = \beta_1 S_i + \beta_2 M_1 + \beta_3 M_3 + \beta_4 M_4 + \beta_5 P_o + \Gamma X_t + \varepsilon_t$$

$$O_t = \beta_1 S_i + \beta_2 M_1 + \beta_3 M_3 + \beta_4 M_4 + \beta_5 P_o + \beta_6 M_1 P_o + \beta_7 M_3 P_o + \beta_8 M_4 P_o + \Gamma X_t + \varepsilon_t$$

$O_t$ is organizational performance and $S_i$ is stability. The key interests of this study are managerial factors: internal management ($M_1$), exploiting the environment ($M_3$), and buffering the environment ($M_4$). Ownership publicness ($P_o$) is added, and vectors of environmental factors ($X_t$) are also included as control variables. The interactions between management and ownership are included to test whether there are different effects of management in the public, nonprofit, and for-profit sectors.

## 3.4. Theoretical Explanations for Management, Performance, and Publicness

### 3.4.1. Internal management

The distinctive internal characteristics of public, nonprofit, and for-profit organizations can shape the relationship between internal management and performance differently. Managers in the private sector have a greater variety of internal actions to manage people and allocate resources, whereas managers in the public sector tend to have more formal procedures for decision-making and be less flexible in internal operations (Rainey 2009; Wilson 1989).[25] Regarding personnel management, for-profit managers have a variety of management tools, such as monetary incentives, promotions, or punitive actions, while public managers have limited options due to the formal rules and the job security of public employment (Baldwin 1987; Rainey 2009).

While nonprofit managers have higher levels of personnel flexibility and fewer constraints compared to public managers (Feeney and Rainey 2009; Hall 1992), they still need to negotiate personnel policies with board members and funders (Hall 1992; Weisbrod 1988). They may also be limited by the strong normative values of their employees (Donahue and Zeckhauser 2011). The significant differences in the range of available options in managing people and resources across the public, nonprofit, and for-profit sectors generate different levels of stress on internal management. More flexibility of procedures and a greater range of options encourage managers to make extra efforts

[25] The existence of red tape (excessive and burdensome rules and regulations) is also considered a typical character of bureaucratic organizations (Bozeman 2000). It also generates unique internal constraints for public managers.

on internal management in the for-profit sector; managers, in this case, will engage in a higher level of internal management.

Even if there is a variety of tools available, managers cannot use them without sufficient autonomy. In both the public and private sectors, managers must have autonomy to make decisions and implement their strategies to influence performance (Boyne and Chen 2007; Hvidman and Andersen 2013; Moynihan 2006, 2008). While "private management proceeds much more by direction or the issuance of orders to subordinates by superior managers with little risk of contradiction" (Allison 1979, 399), public managers have "less freedom to react as they see fit to the circumstances that they face" (Boyne 2002, 101). Limited autonomy makes it difficult for public managers to utilize managerial tools in their organizations as well as prevents them from changing internal operations even if they think necessary. More autonomy in the private sector, however, allows managers to make the best use of their tools and enhance the impact of internal management on performance.

Even if managers have feasible tools and sufficient autonomy, they need to know what their goals are. Higher levels of goal ambiguity in governmental organizations may prevent managers from maximizing the impact of internal management on performance (Chun and Rainey 2005a, 2005b). The lack of goal clarity can result in managers having to focus not on a single performance indicator but on multiple goals and performance criteria (Hvidman and Andersen 2013).

Nonprofit organizations are mission-oriented entities that pursue public values like governmental organizations. While it is known that a unifying vision and clear goals

are critical factors in improving performance in the nonprofit sector (Sawhill and Williamson 2001), missions and goals are often formulated in broad and abstract terms (e.g., improving the quality of life for all citizens), with goal complexity as one of the major challenges in the nonprofit sector (Alexander 1998). Unlike public or nonprofit managers, the fundamental concern of business managers is creating markets to enable earning profits, and they have a relatively clear goal—maximizing profits. The different levels of goal ambiguity may affect internal operations to achieve their goals across sectors.

Empirical evidence also supports the idea that management matters differently in the public and private sector. Hvidman and Andersen (2013), for example, argue that performance management is more effective in the private sector than in the public sector due to different organizational characteristics, such as incentives, capacity, and goal clarity.[26] Their empirical finding shows that performance management improves performance without bringing negative effects on equity in private organizations whereas it is not an effective tool for improving performance in public organizations.[27] Using a field experiment, An et al. (2018) show that leadership training is more effective in the public sector than the private sector, but their finding might have been a function of the lower level of leadership in the public sector. I expect that for-profit managers, on

[26] Although Hvidman and Andersen (2013) focus on performance management in discussing the public–private distinction, their arguments can be applied to the effect of internal management because performance management deals with managing objectives, providing feedback, and managing performance evaluation system primarily inside organizations.
[27] This study is conducted in Denmark; whether their findings would hold in the United States is an open question.

average, will engage in a higher level of efforts to improve internal operations of the organization and their internal management has a greater impact on performance compared with that of public or nonprofit managers.[28]

Hypothesis 3-1a. For-profit managers are more likely to manage internal operations compared with nonprofit and public managers.

Hypothesis 3-1b. Internal management matters more for performance in for-profit organizations than in public or nonprofit organizations.

### 3.4.2. Exploiting the environment

The amount of uncertainty and rate of change in an environment influence the internal functioning of organizations (Lawrence and Lorsch 1967). How managers deal with their environments has been a key question in the public management literature (e.g., Akkerman and Torenvlied 2011; Johansen and Zhu 2014; Pfeffer and Salancik 1978; Thompson 1967). External circumstances of organizations vary across the public, nonprofit, and for-profit sectors, and these different environmental circumstances lead to different management strategies.

[28] By contrast, Meier and O'Toole (2011) expect that internal management matters more in public organizations than private organizations even if the variation of internal management is larger in the private sector. Their logic is that the autoregressive parameter and stabilizing factors are larger in the public sector; therefore, the relative impact of internal management will be larger in the public sector than in the private sector. Whether public organizations are more sluggish and whether stabilizing factors matter more in the public sector, however, are empirically testable claims. The authors also note it is possible that the effect of internal management on performance in the private sector can be greater than that of public sector organizations.

First, private for-profit organizations are designed to be more open to market forces and face more competitive pressures compared with public organizations (Boyne 2002; Rainey 2009). The competitive environments generate greater stress on innovation (Lynn 2005) and encourage private managers to initiate changes and seek new opportunities from the environment (Meier and O'Toole 2011). Governmental organizations typically have fewer rivals for the provision of public service and often enjoy a dominant position in the market, even when competition exists (Boyne 2002; Rainey 2009). Relatively weak competitive pressures in the public sector lead managers to be less likely to search for new opportunities.[29]

While for-profit and public organizations are more constrained by market and politics respectively, nonprofit organizations face both political and market constraints (Johansen and Zhu 2014). This situation puts nonprofit managers in a unique position to be innovative relative to their for-profit and public counterparts (Moulton and Eckerd 2012). Nonprofit managers would have fewer economic incentives than for-profit managers to respond to market forces and be innovative; at the same time, they would have greater incentives to do so compared with public managers (Johansen and Zhu 2014). Empirical evidence also has shown that for-profit managers are more likely to respond to market forces and tend to prioritize service efficiency under increased competition compared with public and nonprofit managers (see Johansen and Zhu 2014).

[29] Yet some studies (including the first empirical essay of this dissertation) suggest that market competition can benefit public and nonprofit organizations.

Second, governmental organizations are more permeable and easily influenced by political constraints that often result in frequent policy changes (Boyne 2002). The instability in political landscapes often brings greater uncertainty to the environment of public organizations, and managers under this condition are less likely to take risks and seek innovation. Political constraints also create the imposition of short time frame on public managers. The time frames of public managers are "related to political cycles of government" and "there is constant pressure to achieve quick results" that can bring the agency a larger share of appropriations (Bozeman 1987, 20).[30] Furthermore, "public managers more often are reacting to externally imposed change rather than managing changes that they have had a role in formulating" (Bozeman 1987, 1). Nonprofit managers also are sensitive to political constraints, and they behave like public managers under greater political constraints (Johansen and Zhu 2014). Greater impacts of political constraints may make public and nonprofit managers risk averse and more conservative compared with their for-profit counterparts.

Third, public organizations have a variety of stakeholders who place different and often conflicting demands and constraints on managers (e.g., taxpayers vs. service recipients); and heterogeneous preferences of multiple stakeholders generate more complexity in the environment of public organizations (Boyne 2002). For-profit organizations, however, are designed to carry on primarily for the profit of their

[30] This problem also can appear in the private sector but for a different reason. Some criticize business for a focus on short-term performance (e.g., quarterly profits) rather than long-term performance due to the pressure from shareholders.

shareholders, and they have duties to shareholders. Business managers may ignore most constituents' demands for input into the policy processes (Ring and Perry 1987), whereas constituents significantly matter for public managers. Because private ownership rewards managerial decisions that bring profits, managerial efforts to exploit the environment are likely to generate higher returns to performance in the private sector. Put differently, fewer stakeholders and less complexity in the environment encourage for-profit managers to search for new opportunities that can maximize profits.

In addition to the heterogeneity in the external circumstances, the range of available tools to exploit new opportunities varies across sectors. More available options and greater environmental pressures lead for-profit managers to take more risks and actively explore new opportunities from the environment (Meier and O'Toole 2011). As an example, businesses firms can quit markets or more to a new one while government agencies are not allowed to do this generally. Exploiting actions would be more effective in the for-profit sector compared with the public and nonprofit sector.

Hypothesis 3-2a. For-profit managers are more likely to exploit the environment compared with nonprofit and public managers.

Hypothesis 3-2b. Exploiting the environment matters more for performance in for-profit organizations than in public or nonprofit organizations.

### 3.4.3. Buffering the environment

Governmental agencies and bureaucracies are designed to deal with uncertainty (O'Toole and Meier 2003a) partly because "turbulence and interconnectedness

characterize the environments of most public organizations" (Rainey 2009, 96) and partly because predictability based on established rules is one of the core values in the public sector (Weber 1946). Public organizations, by nature, have advantages in institutional design that deal with uncertainties and turbulence. The existence of written rules, records, and standard operating procedures (SOPs) reduces uncertainty and makes governmental agencies more predictable organizations (O'Toole and Meier 2003a; Weber 1946).

The institutional setting—complex and unstable policy environment due to the multiple principal problem and political instability—also encourages bureaucratic organizations to have more stable and predictable preferences and to be coupled with an incremental decision-making process (O'Toole and Meier 2003a). These are structural elements that help secure an organization from the external shock (O'Toole and Meier 2003a). Given that buffering is about managerial efforts to deal with uncertainty in the environment, public managers within these structures have comparative advantages in buffering action.

In addition to the institutional setting that encourages stability, management itself is more likely to engage in a set of buffering strategies in governmental organizations compared with private organizations (Meier and O'Toole 2008). Managers in the public sector may have more available options to buffer external influences. Public managers, for example, can operate public programs via a network of two or more organizations to decrease uncertainty (O'Toole and Meier 2003a). They may be able to reduce environmental uncertainties using the advantage of coercive powers and to limit the

impact of external influences (Meier and O'Toole 2011). In addition, public managers tend to have more experience and expertise in buffering and more chances to learn how to deal with external factors over time because their environments greater emphasize buffering strategies (Meier and O'Toole 2011). Having a high capacity of buffering helps managers make better judgments in choosing which factors should be allowed to go into internal operations and which factors should not (O'Toole and Meier 2003a).

Firms also protect their internal operations from environmental forces; however, a large group of scholars has argued that buffering strategies make firms uncompetitive because they weaken organizational changes and cost them financial and human resources (Borys and Jemison 1989; Lynn 2005). For-profit organizations may have to pay more for buffering in part because they do not have well-structured buffering institutions like governmental organizations do or because they are more likely to be rewarded for innovation than buffering by shareholders. The effect of buffering on environmental turbulence, therefore, can be larger in the public sector than the for-profit sector.

Nonprofit organizations also deal with numerous types of environmental factors, and each social, political, and economic factor influences organizational performance in the nonprofit sector (Alexander 1998). Nonprofits face challenges due to external influences and multiple stakeholders, such as boards, volunteer and paid labor, service recipients, and government agencies (Feeney and Rainey 2009; Salamon 1987). In many cases, nonprofit organizations have intangible goals and tasks, and this unclear technology often makes nonprofit organizations focus more on the environment than on

their internal operations (Alexander 1998, 274). While dealing with a great deal of environmental uncertainty, buffering is a common deflection strategy in the nonprofit sector (Alexander 1998) because they lack the capacity to respond or adopt to changing environments. Nonprofit organizations, for instance, tend to protect their core actives from external fundraising activities (Grønbjerg 1993; Thompson 1967).

While complex environments stress buffering more in the nonprofit and public sectors compared with the for-profit sector, nonprofit managers have a relatively less structured buffering system and access to fewer options compared with public managers. Moreover, nonprofit organizations may be less likely to have the slack needed to act as a buffer. Under these conditions, nonprofit organizations deal with the changing environment by using more flexible responses (Bode 2003). Based on the prior discussion, I expect that the contributions of buffering in the public sector can exceed the contribution of buffering in the nonprofit and for-profit sector.

Hypothesis 3-3a. Public managers are more likely to buffer the environment compared with nonprofit and for-profit managers

Hypothesis 3-3b. Buffering the environment matters more for performance in public organizations than in nonprofit or for-profit organizations.

### 3.4.4. Managerial networking

The ways to deal with environments are not limited to exploiting and buffering actions. Networking with external actors can be another managerial strategy. While the original management model suggests that managerial networking ($M_2$ in the Meier and

O'Toole model) is a ratio of exploiting the environment ($M_3$) and buffering the external shocks ($M_4$), I argue that managerial networking can capture another aspect of managerial efforts to deal with environments. If we focus on behavioral networking (a manager's interaction with external actors), then the frequency of networking may tap the *quantity* of external management, while exploiting and buffering the environment may capture the *quality* of external management. Put differently, while exploiting and buffering the environment are the decisions about *what strategies to use*, managerial networking is the choices about *whom to interact with* and *how often to do it*.

Previous literature also has suggested that the effect of external management on performance can vary depending on the direction of networking. Johansen and LeRoux (2013), for example, find that nonprofit managers' political networking (interaction with state/local government agencies, state and local legislators, etc.) contributes to advocacy effectiveness, while their community networking (interaction with local business groups, representatives of the community, etc.) increases general effectiveness.

Given that governmental organizations are more constrained by political circumstances while business firms are more constrained by market conditions, I expect that political networking matters more in the public sector while financial networking matters more in the for-profit sector. Frequent networking with the right actors may enhance the comparative advantages of management strategies in each sector. The theory suggests a greater impact of exploiting in private organizations and a greater impact of buffering in public organizations. I hypothesize that a public manager's buffering strategy would be more effective when they interact more with political actors

while a for-profit manager's exploiting strategy would be more effective when they more frequently meet with financial actors.

Hypothesis 3-4. Buffering the environment matters more for performance in the public sector where managers more frequently interact with political actors.

Hypothesis 3-5. Exploiting the environment matters more for performance in the for-profit sector where managers more frequently interact with financial actors.

### 3.5. Research Context

This essay examines the relationship between management and performance in public, nonprofit, and for-profit organizations in the context of U.S. nursing homes. Nursing homes make a good case to study management, performance, and publicness for four reasons. First, healthcare is a viable example of a complex and elaborate public service, and it is substantially an important policy area given the increasing elderly population. As the demand for long-term care increases due to longer average life-spans, federal and state governments demand that nursing home managers ensure high-quality service with limited public funds.

Second, nursing home ownership varies across public, nonprofit, and for-profit homes, but they deliver similar services in the same market. All facilities operate in the same industry and do similar tasks, which suggests that industry characteristics and task characteristics can be controlled. Moreover, all public, nonprofit, and for-profit facilities face the same set of federally mandated and state-administrated health regulations and

only moderately different financial environments (Amirkhanyan, Meier, and O'Toole 2016).

Third, effective management has become the key to promoting quality long-term care (Amirkhanyan et al. 2018). Previous literature also shows that nursing home managers' efforts to innovate and buffer environmental challenges play a significant role in improving the quality of care (Amirkhanyan et al. 2018, 2019).

Last, a standardized archival performance matrix exists in elderly healthcare (e.g., service quality rating), and we do not need to rely on perceptual performance indicators that are more prone to cognitive biases. The standardized indicator makes it easier for managers and consumers to evaluate nursing home quality and for us to estimate the effect of management on performance across public, nonprofit, and for-profit nursing homes.

### 3.6. Data and Methods

This study empirically tests the hypotheses using multiple datasets. The first dataset comes from the NHC database, a national administrative database by CMS. The datasets were created as part of the quality assessment and certification process of healthcare providers. The data include various nursing home characteristics, such as ownership status, the number of certified beds, the number of residents, staffing hours, hospital affiliation, and standardized quality indicators.

The second dataset comes from Texas A&M University Nursing Home Administrator (NHA) surveys. The first survey was conducted between January 2013

and May 2013, and the second survey was conducted between August 2016 and August 2017. The sampling list included all presently operating governmental nursing homes ($N$ = 903), and a random sample of 1,000 nonprofit and 1,000 for-profit homes in 2013. In the first survey (2013), a total of 725 nursing home administrators responded to the survey with a response rate of 24.97%.

In the second survey (2016–2017), a total of 545 nursing home administrators responded to the survey with a response rate of 18.77 %. Out of 725 administrators who participated in 2013, 240 administrators responded to the 2016–2017 survey, which made the data an unbalanced panel dataset. I combine these two surveys, and the final dataset includes 1,260 observations after dropping duplicate records. The survey data include nursing home managers' opinions of their managerial practices, perceived performance, and environmental challenges.

The third dataset comes from the ACS by the U.S. Census Bureau. ACS data include county-level demographic and socioeconomic characteristics, such as the percentage of poverty, the percentage of an elderly population, and the racial component in each county. By merging these three databases, this study tests how the effect of management on performance varies across public, nonprofit, and for-profit nursing homes.

Because the dependent variable is a five-star quality rating that has an ordinal scale, I use ordered logit analysis with interaction terms to test the previously stated hypotheses. The models include state fixed effects to control for state-level factors and year fixed effects to capture any year-specific factors that remained uncontrolled after

including a set of variables for controls. Robust standard errors are clustered by county to address heteroscedasticity. The unit of analysis for this study is the individual nursing home.

### 3.7. Measures

*Organizational performance*

The dependent variable is a nursing home's overall quality measured using a five-star rating by CMS. CMS reports a standardized quality indicator, the five-star quality rating, for each nursing home. The five-star quality rating is a formula that incorporates three different sources of service quality information: health inspections, quality, and staffing measures. I use overall quality rating as a performance indicator for each nursing home. Figure A.4 in the Appendix shows the distribution of quality rating across public, nonprofit, and for-profit nursing homes.

*Management and ownership*

Managerial practices in this study include internal management ($M_1$), exploiting the environment ($M_3$), buffering the environment ($M_4$), and managerial networking ($M_2$). Internal management captures a manager's effort to oversee the internal operations of the organization (Meier and O'Toole 2011). Using the NHA survey responses, I create an internal management measure reflecting the efforts of nursing home administrators to involve employees in the decision-making process, be open to feedback from customers, and reconcile disagreements. Nursing home administrators were asked to rate these items using a four-point scale ("strongly agree" = 4, "agree" = 3, "disagree" = 2, and

"strongly" disagree = 1). The factor analysis of internal management produces a single factor with an eigenvalue of 2.41 that is coded so higher values indicate better internal management. Table A.4 in the Appendix shows the factor analysis results and the survey questions.

To measure exploiting efforts, the NHA survey uses questions reflecting a manager's effort to adopt new ideas and practices, adopt new technology, and search for new opportunities. Nursing home administrators answered on a four-point scale (ranging from "strongly agree" to "strongly disagree"), and the three items loaded appropriately on a single factor with an eigenvalue of 2.10 (Table A.4 in the Appendix).

Previous research often has considered buffering as "a system component" and has measured the concept by focusing on outcomes (see Meier and O'Toole 2008, 938); however, this paper considers buffering as a management component and focuses on management actions. The measure is created based on the NHA survey items regarding a manager's effort to respond to unexpected events and disturbances, limit the influence of external events, and control external factors that can affect organizations. This buffering measure is beneficial because it captures the degree of managerial buffering and isolates the effects of structural buffering. The survey items were answered on a four-point scale (from "strongly agree" to "strongly disagree"), and all items loaded on a single factor with an eigenvalue of 1.59 (Table A.4 in the Appendix).

One approach to tapping managerial networking ($M_2$) in interdependent settings is to measure networking frequency and direction. How frequently public managers interact with external actors has been one of the most common measures of managerial

networking in the public management literature (e.g., Meier and O'Toole 2003, 2005; Meier et al. 2015). Nursing home managers were asked how frequently they interact with environmental actors such as state and local governments, Medicare and Medicaid agencies, and insurance companies on a six-point scale ranging from "daily" to "never." The factor analysis produces a two-factor solution (Table A.5 in the Appendix): the first factor captures a manager's interaction with financial actors (financial networking) while the second factor represents interaction with regulatory agencies (political networking).

Managerial stability here is operationalized as a manager's longevity in the organization. It is measured as the number of years an individual has been an administrator at their current nursing home. The idea is that the longer managers work in their nursing home, the more stability they have. On average, administrators in the sample have about seven years of experience in their current facilities, and public managers (7.65 years) and nonprofit managers (7.94 years) tend to have greater longevity compared with for-profit managers (5.96 years).

Ownership is the legal status of a nursing home. I follow the CMS categorization of nursing homes and code all certified nursing homes into three categories: public, nonprofit, and for-profit facilities. All survey questions used to measure management are identical in both surveys.

*Facility-level controls*

The models control for various nursing home characteristics and environmental factors that can affect nursing home quality. Previous literature has suggested that organizational size can affect program performance given that bigger organizations tend

to have more human and financial resources. The models include the number of certified beds and the number of residents in each nursing home to control for facility size. The quality of staffing plays a significant role in improving service quality in healthcare. I control for total nursing hours per resident per day capturing staffing capacity in each nursing home. Organizational age—years since approved to provide Medicare/Medicaid service—is also included because facilities with longer experiences are more likely to provide better service.

Ownership is one of the key variables in this study, and the models control for whether a nursing home has changed its owner in the last 12 months (yes = 1, no = 0). A nursing home's certification status is also controlled (only Medicare certified, only Medicaid certified, or both Medicare and Medicaid certified). Whether a nursing home is affiliated to a hospital can determine the ways facilities operate and the service quality. I include a dummy variable to measure a nursing home's hospital affiliation status (yes = 1, no = 0).

*County-level controls*

In addition to various nursing homes characteristics, the models also include county characteristics to control for environmental factors that may affect the quality of care. Both demographic and economic characteristics are considered factors that can affect nursing home performance. Because population density has been considered a key predictor of health quality, models include population density per square mile (in 1,000s). The percent of the elderly population and the percent of the white population are included to control for a county's demographic composition.

To control for economic characteristics of each county, the models include health insurance coverage, percent of the unemployed population (aged 16 years and over in labor force), percent of the population in poverty, and the Gini index of income inequality at the county level. Market competition is also included. Table A.6 in the Appendix shows descriptive statistics for all variables.

### 3.8. Findings

To test hypotheses on the different levels of management actions, I compare the mean scores by each sector for each management practice. Table 3.1 presents the results from one-way analysis of variance (ANOVA) tests, and Figures 3.1 and 3.2 visually demonstrate the mean differences in management across public, nonprofit, and for-profit managers.

Table 3.1 reveals no statistical differences across public, nonprofit, and for-profit managers for internal management. There is also no significant difference in exploiting the environment, although the mean value of exploiting in the for-profit sector is slightly greater than that of the public and nonprofit sector. The results for buffering, however, are consistent with theoretical expectations. Public managers are more likely to buffer external disturbances compared to nonprofit and for-profit managers, and this difference is statistically significant ($F = 4.31$, $p < 0.014$). Networking behaviors also show significant differences across public, nonprofit, and for-profit managers. For-profit managers are more likely to interact with financial actors compared to others ($F = 13.28$,

$p < 0.000$), while public and for-profit managers are more likely to interact with regulatory agencies compared with nonprofit managers ($F = 7.96$, $p < 0.000$).

It is also noteworthy that the standard deviations of internal management and exploiting the environment in the for-profit sector are larger than those of the public and nonprofit sectors (propositions 1 and 2). Moreover, public managers have a larger standard deviation of buffering compared to for-profit managers (proposition 3).

In sum, the evidence from top managers in U.S. nursing homes reveals that management strategies do not significantly vary in managing internal operations and innovative strategies. They do significantly vary in buffering external disturbances and networking behaviors.

**Table 3.1. Heterogeneity in Managerial Practices Across Public, Nonprofit, and For-profit Managers**

| Management | | Public | Nonprofit | For-profit | *F* | Prob > *F* |
|---|---|---|---|---|---|---|
| Internal management | Mean | 0.00 | 0.03 | –0.04 | 0.41 | 0.663 |
| | SD | 1.00 | 0.98 | 1.02 | | |
| Exploiting | Mean | –0.05 | 0.01 | 0.04 | 0.89 | 0.412 |
| | SD | 0.98 | 1.00 | 1.03 | | |
| Buffering | Mean | 0.08 | –0.11 | 0.03 | 4.31 | 0.014 |
| | SD | 1.01 | 1.01 | 0.97 | | |
| Financial networking | Mean | –0.12 | –0.11 | 0.25 | 13.28 | 0.000 |
| | SD | 0.95 | 0.98 | 1.04 | | |
| Political networking | Mean | 0.08 | –0.18 | 0.12 | 7.96 | 0.000 |
| | SD | 0.97 | 0.88 | 1.13 | | |
| Managerial stability | Mean | 7.65 | 7.94 | 5.96 | 6.94 | 0.001 |
| | SD | 8.37 | 8.14 | 7.02 | | |

**Figure 3.1. Management Across Public, Nonprofit, and For-profit Organizations**

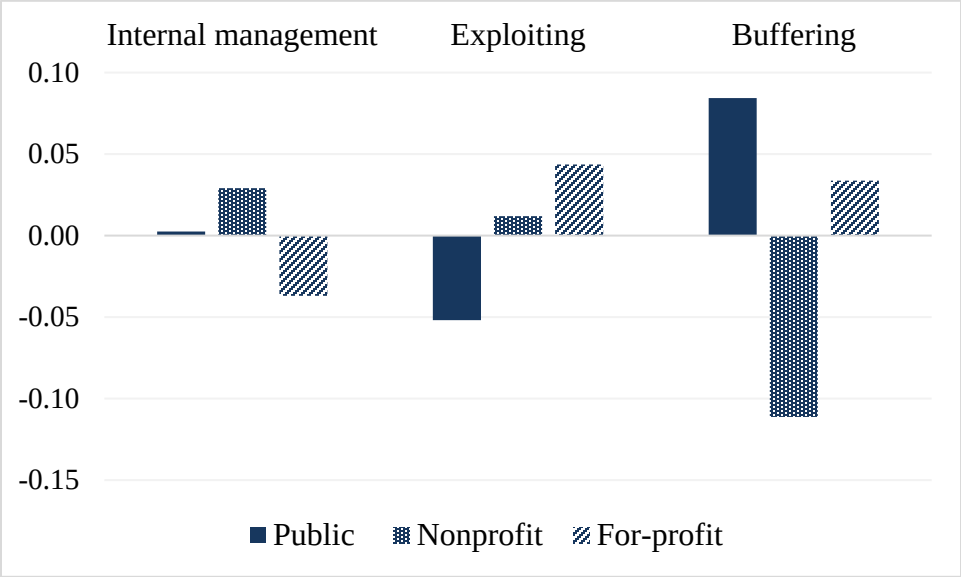



**Figure 3.2. Networking Across Public, Nonprofit, and For-profit Organizations**

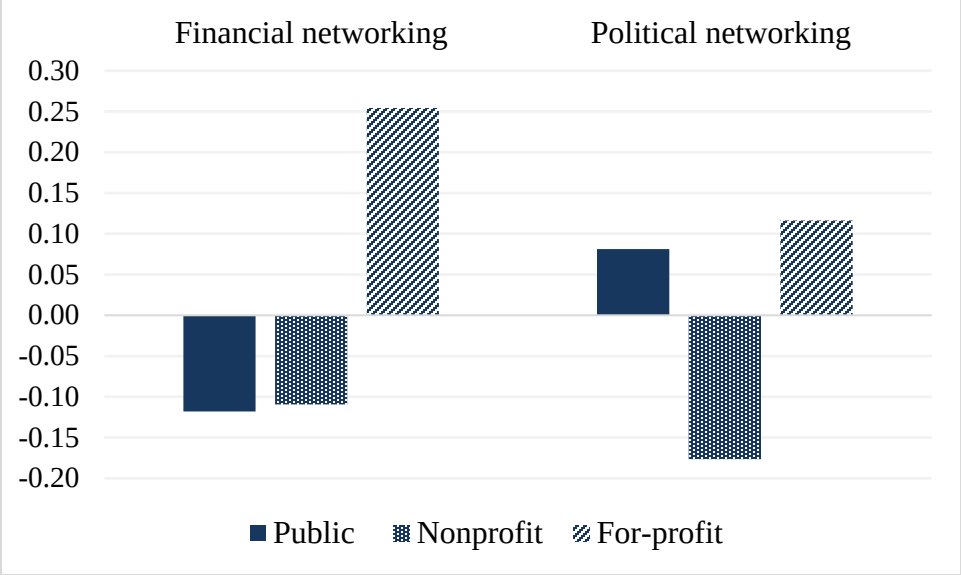


Table 3.2 reports ordered logit coefficients for three management variables. The results are largely consistent with previous research suggesting management matters for performance. Internal management and exploiting the environment are positively and significantly associated with higher quality ratings. Managerial stability also significantly contributes to service performance. Buffering the environment, however, is not significantly related to the quality of service in the U.S. nursing home context. Interestingly, public and nonprofit nursing homes significantly perform better than for-profit homes. They tend to have a higher star-rating compared with for-profits in all models.

The coefficient of facility size (the number of beds) is negative and significant (with a significance level of 0.1). This result suggests that larger nursing homes tend to have lower star ratings. Certification status matters in star-rating. Medicare-only certified and Medicaid-only certified facilities are more likely to perform better than both Medicare and Medicaid-certified facilities. This finding might result from different levels of goal clarity because Medicare and Medicaid-certified facilities seek to meet two sets of criteria, while Medicare-only and Medicaid-only certified facilities pursue only one set of criteria. Consistent with past research, higher population density is related to a higher star rating while higher poverty rate is associated with a lower star rating.

**Table 3.2. The Impact of Management Practices on Service Performance**

| Dependent variable = Overall quality rating | | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Public home | 0.473** | 0.505** | 0.481** | 0.494** |
| | (0.169) | (0.171) | (0.171) | (0.170) |
| Nonprofit home | 0.672*** | 0.694*** | 0.685*** | 0.679*** |
| | (0.166) | (0.167) | (0.167) | (0.165) |
| Internal management | 0.184** | | | 0.143* |
| | (0.060) | | | (0.063) |
| Exploiting the environment | | 0.214*** | | 0.177** |
| | | (0.062) | | (0.065) |
| Buffering the environment | | | 0.021 | –0.040 |
| | | | (0.058) | (0.060) |
| Managerial stability | 0.022** | 0.020** | 0.023** | 0.020** |
| | (0.008) | (0.008) | (0.008) | (0.008) |
| Number of beds | –0.009+ | –0.008+ | –0.009+ | –0.008+ |
| | (0.005) | (0.005) | (0.005) | (0.005) |
| Number of residents | 0.007 | 0.006 | 0.007 | 0.006 |
| | (0.005) | (0.005) | (0.005) | (0.005) |
| Staffing hours | 0.267 | 0.262 | 0.265 | 0.263 |
| | (0.215) | (0.214) | (0.215) | (0.214) |
| Years since certification | 0.003 | 0.004 | 0.003 | 0.004 |
| | (0.006) | (0.006) | (0.006) | (0.006) |
| Changed ownership | –0.480 | –0.467 | –0.508 | –0.449 |
| | (0.436) | (0.434) | (0.429) | (0.437) |
| Certification: Medicare only | 0.987** | 0.990** | 0.988** | 0.991** |
| | (0.310) | (0.317) | (0.313) | (0.316) |
| Certification: Medicaid only | 0.483* | 0.541* | 0.437* | 0.562* |
| | (0.225) | (0.227) | (0.222) | (0.229) |
| Hospital affiliated home | –0.153 | –0.154 | –0.162 | –0.148 |
| | (0.202) | (0.201) | (0.200) | (0.202) |
| Population density | 0.136*** | 0.135*** | 0.136*** | 0.135*** |
| | (0.026) | (0.026) | (0.026) | (0.026) |
| Percentage of elderly population | 0.015 | 0.013 | 0.013 | 0.015 |
| | (0.021) | (0.021) | (0.021) | (0.021) |
| Percentage of white population | 0.009 | 0.008 | 0.010 | 0.008 |
| | (0.007) | (0.007) | (0.007) | (0.007) |
| No health insurance population | –0.011 | –0.009 | –0.009 | –0.010 |
| | (0.022) | (0.022) | (0.022) | (0.022) |

**Table 3.2. Continued**

| Dependent variable = Overall quality rating | | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Unemployed population | 0.038 | 0.043 | 0.049 | 0.036 |
| | (0.059) | (0.059) | (0.059) | (0.059) |
| Poverty population | –0.048** | –0.050** | –0.051** | –0.048** |
| | (0.018) | (0.018) | (0.018) | (0.018) |
| Gini index of income inequality | 3.669 | 3.973+ | 3.964+ | 3.758 |
| | (2.341) | (2.306) | (2.331) | (2.316) |
| Market competition | 0.056 | 0.040 | 0.040 | 0.047 |
| | (0.280) | (0.271) | (0.274) | (0.278) |
| Panel data | 0.156 | 0.143 | 0.149 | 0.150 |
| | (0.119) | (0.118) | (0.119) | (0.119) |
| State fixed effects | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes |
| AIC | 3,631.01 | 3,627.88 | 3,641.36 | 3,626.38 |
| BIC | 4,016.43 | 4,013.29 | 4,026.77 | 4,022.08 |
| *N* | 1,260 | 1,260 | 1,260 | 1,260 |

*Note*. Coefficients from ordered logit regression analysis are reported. Robust standard errors are clustered by county and shown in parentheses. The reference group for public and nonprofit nursing homes is for-profit homes. The reference group for certification status is nursing homes certified by both Medicare and Medicaid. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 3.3 presents how the effect of management on service performance varies across public, nonprofit, and for-profit nursing homes. I include the interaction terms between each of management variables and public/nonprofit dummies. A reference group therefore is for-profits. The interaction between internal management and public homes is negative and significant, suggesting the positive effect of internal management on performance is greater for for-profit nursing homes than public nursing homes. A similar result is found for nonprofit nursing homes. Internal management matters more in for-profit nursing homes compared to nonprofit nursing homes.

The result from exploiting the environment is also consistent with theoretical expectation. The interaction between exploiting the environment and public ownership is negative and significant (with a significance level of 0.1). This finding implies that managerial actions exploiting the environment can be a more effective strategy in the for-profit sector.

An unexpected result, however, is found regarding managerial buffering actions. While theoretical expectations suggest that buffering can be a more effective strategy in the public sector, the interaction between buffering and public facilities is negative and significant. This result suggests that managerial buffering matters more in for-profit organizations.

Tables 3.4 and 3.5 show the results from the analysis of managers' networking behaviors. In Table 3.4, I split the sample and include the interaction between buffering actions and networking nodes. The interaction between buffering and political networking is only positive and significant in public organizations, suggesting the positive effect of buffering can be greater when public managers more frequently interact with regulatory agencies. This pattern does not appear in the nonprofit and for-profit sectors. Table 3.5 shows that the interaction between managerial actions exploiting the environment and for-profit homes is not significant.

**Table 3.3. Differences in Managerial Impact on Performance Across Public, Nonprofit, and For-profit Organizations**

| Dependent variable = Overall quality rating | | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| Public home | 0.459** | 0.504** | 0.512** |
| | (0.170) | (0.171) | (0.172) |
| Nonprofit home | 0.669*** | 0.704*** | 0.704*** |
| | (0.165) | (0.166) | (0.169) |
| Internal management | 0.392*** | | |
| | (0.117) | | |
| Public home × Internal management | –0.311* | | |
| | (0.154) | | |
| Nonprofit home × Internal management | –0.304+ | | |
| | (0.161) | | |
| Exploiting the environment | | 0.363*** | |
| | | (0.108) | |
| Public home × Exploiting | | –0.247+ | |
| | | (0.146) | |
| Nonprofit home × Exploiting | | –0.193 | |
| | | (0.147) | |
| Buffering the environment | | | 0.218+ |
| | | | (0.116) |
| Public home × Buffering | | | –0.390** |
| | | | (0.150) |
| Nonprofit home × Buffering | | | –0.159 |
| | | | (0.152) |
| Controls included | Yes | Yes | Yes |
| State fixed effects | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes |
| AIC | 3,628.65 | 3,628.34 | 3,636.93 |
| BIC | 4,024.34 | 4,024.03 | 4,032.62 |
| *N* | 1,260 | 1,260 | 1,260 |

*Note*. Coefficients from ordered logit regression analysis are reported. Robust standard errors are clustered by county and shown in parentheses. The reference group for public and nonprofit nursing homes is for-profit homes. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

**Table 3.4. Political Networking and Performance**

| Dependent variable = Overall quality rating | | | |
|---|---|---|---|
| | Public | Non profit | For-profit |
| Buffering | –0.165 | 0.124 | 0.142 |
| | (0.105) | (0.099) | (0.119) |
| Political networking | –0.177 | –0.018 | –0.219+ |
| | (0.118) | (0.132) | (0.117) |
| Buffering × Political networking | 0.217* | 0.196 | –0.208 |
| | (0.101) | (0.139) | (0.141) |
| Controls included | Yes | Yes | Yes |
| State fixed effects | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes |
| AIC | 1,230.93 | 1,273.69 | 1,188.55 |
| BIC | 1,519.45 | 1,549.16 | 1,440.55 |
| *N* | 430 | 451 | 379 |

*Note*. Coefficients from ordered logit regression analysis are reported. Robust standard errors are clustered by county and shown in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

**Table 3.5. Financial Networking and Performance**

| Dependent variable = Overall quality rating | | | |
|---|---|---|---|
| | Public | Non profit | For-profit |
| Exploiting | 0.116 | 0.307* | 0.373** |
| | (0.127) | (0.146) | (0.121) |
| Financial networking | 0.219 | –0.414** | –0.057 |
| | (0.169) | (0.147) | (0.139) |
| Exploiting × Financial networking | 0.059 | 0.097 | –0.183 |
| | (0.160) | (0.150) | (0.119) |
| Controls included | Yes | Yes | Yes |
| State fixed effects | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes |
| AIC | 1,233.59 | 1,265.73 | 1,186.50 |
| BIC | 1,522.12 | 1,549.42 | 1,438.50 |
| *N* | 430 | 451 | 379 |

*Note*. Coefficients from ordered logit regression analysis are reported. Robust standard errors are clustered by county and shown in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

### 3.9. Discussion and Conclusion

This chapter revisits an old comparison—whether public management differs from private management—with a new approach—how public and private management affects performance differently. This study is one of the first to test theoretical expectations by Meier and O'Toole (2011), and it provides systematic empirical evidence on the extent to which internal and external focus of management actions contribute to service performance across public, nonprofit and for-profit organizations. In general, evidence from top administrators in U.S. nursing homes shows consistent differences across public, nonprofit, and for-profit management that fit with theoretical expectations.

The findings presented in this research confirm the theoretical expectations that internal management contributes more to performance in for-profit organizations compared to public and nonprofit organizations. The results for exploiting the environment also supports the theoretical expectations that for-profit managers are more likely to enhance their managerial efforts to exploit new opportunities that benefit performance. The greater impact of internal management and exploitation of the environment in the for-profit sector is especially interesting given the levels of these managers' actions are not significantly different from those of public and nonprofit managers. These results suggest that the marginal contribution of these managerial strategies is greater in for-profit organizations compared to that of public and nonprofit organizations.

It is noteworthy that public managers' efforts to buffer external influences are significantly higher than those of nonprofit and for-profit managers. The differences are more conspicuous in managers' networking pattern—public managers frequently network with regulatory agencies more often, whereas for-profit managers frequently interact with financial actors more often than public managers. Despite the greater efforts of public managers to buffer the external influences, its impact on performance is not larger compared with the private sector.[31]

Why, then, does the buffering strategy not matter more in the public sector in general? The analysis of networking provides a possible explanation. Table 3.4 shows that buffering action contributes more to performance when public managers network more frequently with regulatory agencies (this pattern is not shown in the for-profit and nonprofit sector). This result suggests the impact of buffering on performance in public organizations may depend on who managers interact with. Given that most of the uncertainty comes from political constraints, networking with their political principals can enhance the impact of managerial efforts to protect public organizations.

Another possible scenario is that the effect of buffering action might be enhanced only when organizations have a well-developed structure that helps the

[31] If public managers buffer more and it has a similar impact, they will actually get better results. I calculate the predicted probabilities of achieving high performance by sector using the different mean value of managers' buffering practices in the public and for-profit sectors. The mean value of public managers' buffering practices (0.08) is greater than that of for-profit managers (0.03). This difference is statistically meaningful (Table 3.1). When public managers buffer on their average (setting public = 1 and buffering = 0.08), the predicted probability of getting a 5 star is 33.8% ($p < 0.000$). When for-profit managers do it on their average (setting for-profit = 1 and buffering = 0.03), the predicted probability of getting a 5 star is 24.8% ($p < 0.000$).

managerial buffering function. High levels of stability in an organization can be an example. Public managers can reduce uncertainty by filtering of external factors or dampening the impact of external shocks (O'Toole and Meier 2003a); The greater longevity of management may help managers learn these strategies over time and thereby enhance the effect of buffering. Additional analysis supports this claim and shows that buffering has greater a positive impact on performance in public organizations when there is greater managerial stability (greater longevity of management). This pattern does not exist in nonprofit and for-profit organizations (see Table A.7 in the Appendix).

It is important to point out the limitations of this work and provide directions for future research. First, internal management is a multidimensional concept that includes various elements, such as setting clear and challenging goals, building trust, encouraging employee participation, and providing feedback (Favero, Meier, O'Toole 2016). This research does not consider multiple dimensions of internal management. Exploring the effect of the different dimensions of internal management would make a meaningful contribution. This research takes the first step and further lays the foundation for research on the multidimensionality of internal management. Setting clear goals, for instance, may be more effective in the public sector given that public organizations tend to have more ambiguous goals, while building trust may be more effective in nonprofit organizations because they are relatively loosely connected organizations based on volunteering.

Second, although external management actions are how managers deal with the environment, this research does not deeply investigate how environmental factors play in shaping the relationship between external management and performance. While the current study controls for some of the demographic and economic characteristics at the county level, the future study needs to consider environments and their factors more seriously. A public manager's external management may be more influenced by political constraints, such as elections and policy changes, while a private manager may be more responsive to market constraints, such as industry structure and competition (Johansson and Zhu 2014). Future research can advance the literature by testing how political and market forces shape the relationship between external management and performance differently across the public, nonprofit, and for-profit sectors.

Nonetheless, this study and the analysis have limited generalizability to other policy areas or other countries. Both policy and national context can play a significant role in shaping the relationship between management and performance (Meier, Rutherford, and Avellaneda 2017; O'Toole and Meier 2014). Further examining this relationship across sectors in other contexts with additional data will benefit generalizability.

# 4. THE CASE FOR GOVERNMENT PERFORMANCE: HOW PUBLICNESS SHAPES CITIZENS' PERCEPTIONS OF SERVICE PERFORMANCE

## 4.1. Introduction

In his book, *The Case for Bureaucracy*, Charles Goodsell (2004, 3) states, "our media and politicians tell us that public bureaucracy is bloated in size, inefficient compared to business, a stifling place to work, indifferent to ordinary citizens, the problem rather than the solution." Public sector performance has long suffered from negative perceptions among citizens, even though empirical evidence does not support the notion that public organizations underperform their private counterparts (Andrews, Boyne, and Walker 2011). This negative stereotype of the public sector can be problematic because citizens' perceptions of government performance often determine their support for broad policy objectives, regardless of how the government is actually performing. It may limit citizens' coproduction and thus affect effectiveness of public service delivery (Pestoff, Brandsen, and Verschuere 2013; Van Eijk and Steen 2014). Moreover, the negative perception of government and bureau-bashing is bad for the morale of public sector employees and has a harmful impact on recruiting individuals for public sector jobs (Garrett et al. 2006; Marvel 2015).

As an effort to understand how citizens form their perceptions of government performance, public administration scholars have answered the question of whether negative stereotypes of the public sector are reflected in how citizens evaluate public service performance (Hvidman and Andersen 2016). Recent experimental research finds

that citizens unconsciously associate public ownership with inefficiency, inflexibility, and other pejoratives, and these automatic associations color their evaluations of service quality (e.g., Hvidman 2018; Hvidman and Andersen 2016; Marvel 2015, 2016). Although there is a general consensus that citizens perceive public organizations as underperforming their private counterparts (but see Meier, Johnson, and An 2019; Poister and Henry 1994), the findings on the effect of performance information on citizens' perceptions are inconclusive. Some studies, for example, suggest that providing performance information does not completely eliminate the public sector bias, and citizens still think the private sector is superior (e.g., Marvel 2015, 2016), whereas others show that the addition of performance information does not affect how citizens evaluate public and private organizations (e.g., Hvidman and Andersen 2016; Meier, Johnson, and An 2019).

The mixed findings bring interesting questions about how citizens interpret objective performance information when they evaluate service quality, and whether public ownership shapes this relationship differently. If citizens have negative perceptions of public ownership, then do they judge equivalent performance information more negatively for public agencies compared with for-profit firms? If the sector bias exists in assessing performance, then what about citizens' perceptions of nonprofit organizations? Do citizens evaluate the performance of nonprofits differently than they do the performance of public or for-profit organizations? What roles do market constraints play in shaping citizens' perceptions of service quality across public, nonprofit, and for-profit providers?

This essay seeks to address these questions to contribute to public administration theory and practice. First, by combining a series of archival performance indicators and perceptual evaluations from service users, this study empirically examines whether citizens' assessments of service quality are more or less closely aligned with objective performance indicators in public organizations than in private organizations. Based on the negative stereotype regarding public performance, I expect that citizens are likely to evaluate public organizations less favorably than for-profit organizations for the equivalent performance indicators.

Second, this research also pays attention to citizens' perceptions of nonprofit organizations. Although the nonprofit sector plays a major role in delivering public services, there is scant attention paid to whether citizens evaluate the performance of nonprofits differently than they do the performance of public or for-profit organizations. Nonprofit ownership seldom suffers from anti-public bias, but the literature suggests that citizens tend to perceive for-profits as more competent than nonprofits (Drevs, Tscheulin, and Lindenmeier 2014; Handy et al. 2010) and prefer for-profits over nonprofits even in a service area where nonprofits outperform for-profits (see Ben-Ner, Hamann, and Ren 2018). Whether citizens give more credit to for-profit providers than they do to nonprofit providers for the same level of performance is an open question.

Last, this study highlights the role of market competition in shaping citizens' satisfaction with service quality. One of the theoretical foundations of anti-public bias is that government agencies are inherently inefficient due to their monopoly status. In many policy areas, governmental organizations do not enjoy monopoly status, and they

do compete with others in a service market. Although market constraints have been considered as a fundamental factor that creates differences between public and private organizations (Bozeman 1987; Johansen and Zhu 2014), we know little about the role of market competition in shaping citizens' perceptions of service quality. By bringing market competition into the discussion, this study explores how broader institutional context shapes citizens' evaluations of public, nonprofit, and for-profit organizations.

This research addresses those questions by conducting an observational study in the context of U.S. hospitals. Although previous experimental research provides valuable insights into how citizens see public sector performance based on its strong internal validity, survey experiments are subject to limitations. Placing respondents in a research lab, for example, could potentially affect the way they process information, and their responses might differ if they were collected in a real setting. Survey experiments often focus on perceptions of service performance from individuals who have little or no experience with the service (Hvidman 2018). Moreover, many survey experiments on citizen satisfaction use vague or general questions to ask whether they are satisfied with service quality, which often raises the scrutiny of what this question really measures.

This study uses archival performance data from more than a thousand U.S. hospitals and a random sample of adult patients with a variety of medical conditions who were recently discharged. Using actual quality data and responses from individuals with real experiences can contribute more to external validity. Furthermore, this research uses a valid survey instrument that specifically focuses on patients' assessments of

interpersonal care experiences to guard against the confusion and skepticism that can result from more general satisfaction surveys.

## 4.2. Citizens' Perceptions of Public Sector Performance

### 4.2.1. Origins of the negative stereotype of the public sector

Anti-public sector bias can be defined as either "the expression of negative attitudes in the absence of supporting evidence—that is, evidence that public sector organizations or employees perform poorly" or "the expression of negative attitudes in the presence of countervailing evidence—that is, evidence that public sector organizations or employees perform well" (Marvel 2015, 210). Scholars have studied the factors that contribute to the negative stereotype of government to understand the anti-public sector bias better.

First, political criticisms of bureaucracy in electoral campaigns often foster the negative perceptions of bureaucracy and governments (Gabel and Scheve 2007; Garrett et al. 2006; Hvidman and Andersen 2016). Politicians often blame governments for social problems and label governments and bureaucracies as efficient (Goodsell 2004). The political attacks against government and campaign rhetoric often lead to *bureaucracy bashing* and negative perceptions of governments (Garrett et al. 2006). The media also facilitates the negative image of government performance by transmitting framed political messages to the public (Edelman 1988; Goodsell 1985; Patterson 1993)

or by "issue framing" (Hvidman and Andersen 2016, 113).[32] Negative messages focusing on poor performance or policy failure are more likely to evoke more powerful responses than positive messages focusing on good performance or policy success (Bok 2001; Garrett et al. 2006).

Second, recent NPM reforms may influence citizens' perceptions that the private sector is superior to the public sector in delivering public service (Hvidman and Andersen 2016). Under the NPM notion, public managers are encouraged to adopt successful management techniques from their private counterparts (Boyne et al. 2003; Hood 1991). NPM-style reforms have been popular in many countries, although little empirical research has shown that private management is superior to public management.[33] Recent studies show that NPM reform can significantly influence citizens' perceptions of public service performance (Andrews and Van de Walle 2013).

Third, public choice theory and government failure theory have provided a theoretical background of criticism of government performance. These theories argue that (1) monopolistic government agencies are inherently inefficient and (2) public bureaucracies are self-interested utility maximizers (Buchanan and Tullock 1962; Downs 1967). The former view highlights the economic inefficiency in resource allocation caused by a government intervention, which would not exist in a perfectly competitive

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[32] Issue framing refers to the way how media presents issues regarding governments can shape the way citizens see their governments (Druckman and Parkin 2005; Ladd and Lenz 2009).

[33] Hodge (2000) challenges the assumption that market principals can address performance problems in the public sector. He also demonstrates that privatizing public service does not guarantee better performance. Similarly, Amirkhanyan, Kim, and Lambright (2008) show that public organizations significantly outperform their private counterparts in the context of U.S. nursing homes.

market. The latter approach sees bureaucrats as rational utility maximizes and concerns with their rent-seeking behaviors. In his seminal work, Downs (1967, 83) notes that "every official acts at least partly in his own self-interest, and some officials are motivated solely by their own self-interest."

Although the same logic can apply to private sector officials, what the theory actually implies is that rent seeking by bureaucracy can result in greater social costs of public goods provision (Niskanen 1971) compared to the costs caused by rent-seeking behavior in the private sector. In a similar vein, the budget-maximizing model suggests that bureaucracies want to increase their budgets (Niskanen 1971), and the bureau-shaping model contends that bureaucracies shape their agency to maximize their interests (Dunleavy 1991). This logic of public choice theory may foster negative stereotypes of government performance.

### 4.2.2. Empirical evidence of anti-public sector bias

Recent research in public administration has begun to apply psychological theories and experimental methods to gain a better understanding of what shapes citizens perceptions of government performance (e.g., Grimmelikhuijsen et al. 2017; James and Van Ryzin 2017b; Jilke 2018; Olsen 2015, 2016). Noting Americans' anti-public attitudes, scholars argue that "individuals' *implicit* attitudes regarding public sector organizations are biased," and "citizens *automatically* and *unconsciously* associate public sector organizations with inefficiency, inflexibility, and other pejoratives" (Marvel 2016, 143).

In the context of package delivery in the United States, Marvel (2015) examines whether anti-public bias affects citizens' evaluations of service quality and whether objective performance indicators can correct this bias. His survey experiments show that citizens have a lower expectation for the United States Postal Service (a public organization) than they do for FedEx (a private corporation); providing citizens with performance information does not completely correct this expectation bias.

Van Slyke and Roch (2004) find that U.S. citizens are more likely to misidentify nonprofit organizations as governmental agencies when they are unsatisfied with the service quality. Their finding suggests that organizational image may be more important to citizens than the actual quality of the service. Not only do citizens tend to have negative perceptions of the performance of the public sector but also they perceive good performance information from government agencies as being less credible, especially if that information is reported by the agency itself (James and Van Ryzin 2017a).

Anti-public bias exists not only in the United States but also in Europe. Experiments from Denmark also support that citizens perceive public organizations as less effective and more burdened by red tape compared to private organizations (e.g., Hvidman 2018; Hvidman and Andersen 2016).[34] This finding is particularly interesting given that Denmark is expected to be one of the least likely countries to harbor anti-public biases due to higher levels of public spending (Hvidman and Andersen 2016,

[34] It is noteworthy that these studies have employed multiple performance dimensions, recognizing that public service performance is evaluated by multiple stakeholders with multiple performance criteria (Boyne 2003b). The findings have confirmed that citizens' attitudes toward public organizations can be multifaceted and may not always be negative. Citizens perceive public organizations as less effective but more equitable than private organizations (Hvidman 2018; Hvidman and Andersen 2016).

117). Using survey experiments on U.K. citizens, James et al. (2016) test the theoretical expectation of contracting out reducing citizens' blame when it comes to service failure. They find that the use of private contractors does not reduce blaming of local politicians, but delegation to the local government does, noting that public agencies can be easy targets for blame when politicians seek to avoid blame from citizens (James et al. 2016; see also Marvel and Girth 2016).

While these studies have supported the negative perceptions of public sector performance, other experimental studies provide the opposite results. Based on the theories of blame attribution, Johnson, Geva, and Meier (2019) test whether the use of private contractors influences blame attribution by the mass public. In the context of military contracting, they find that the American public prefers government soldiers over private security contractors, contrasting with the existing literature suggesting the public would prefer the private sector over the public sector. This finding highlights that policy context matters for shaping citizens' perceptions of the public sector, and public agencies may have images that evoke positive emotions among citizens (Teodoro and An 2018).

### 4.3. Objective and Subjective Assessment of Service Performance

While we have learned that public ownership has a negative stereotype and this bias often colors citizens' assessments of public sector performance (e.g., Marvel 2015, 2016), the literature on public performance has shown that citizen satisfaction is in considerable agreement with archival performance indicators, suggesting that citizens'

assessments do reflect real service quality. Specifically, much of the discussion of performance measurement has focused on whether objective performance indicators are associated with subjective performance measures, including citizens' perceptual evaluations (Andrews, Boyne, and Walker 2006a; Favero and Meier 2013). Objective performance indicators include administrative records of performance and archival materials of performance, while subjective measures represent the perceptual judgments of performance made by stakeholders, such as citizens' evaluations of service (Brewer 2006; Selden and Sowa 2004; Walker and Boyne 2006).[35] A strong association between objective and subjective measures supports the convergent validity of these two types of performance data. A lack of congruence between the two types of performance indicators could occur because citizens pick up different aspects of performance from governments (Campbell and Fiske 1959) or because citizens' evaluations of public sector performance are biased (Andersen and Hjortskov 2016).

Many empirical works have shown that objective performance indicators are significantly associated with citizens' evaluations of service quality. In secondary education, for example, archival school quality indicators, such as student academic

[35] Objective measures are believed to reflect an element of real performance and are seen as "impartial, independent, and detached from the unit of analysis" (Andrews, Boyne, and Walker 2006a, 16). Objective measures, however, often fail to fully capture performance accurately because they are often selected based on availability (Amirkhanyan, Kim, and Lambright 2014; Chun and Rainey 2005) and often ignore performance elements that are not quantifiable but matter for citizens (Moynihan 2008). Even with the wide use of subjective measures, subjective measures are criticized that they may be "biased or prejudiced" (Andrews, Boyne, and Walker 2006a, 17), and they often suffer from common source bias (Amirkhanyan, Kim, and Lambright 2014; Brewer 2006; Favero and Bullock 2015; Meier and O'Toole 2013a, 2013b). Given that both measures have limitations, one way to improve performance assessment is to use "a combination of subjective and objective performance measures to compensate for the deficiencies of using either in isolation" (Andrews, Boyne, and Walker 2006a, 18).

achievement and progress report scores, are positively associated with parents' satisfaction with schools (e.g., Charbonneau and Van Ryzin 2012; Favero and Meier 2013; Song and Meier 2018). Citizen satisfaction and street cleanliness ratings are also significantly related to each other, supporting that citizens' evaluations capture the actual quality of public service (Van Ryzin, Immerwahr, and Altman 2008).[36]

A consistent association between objective performance indicators and citizens' perceptual evaluations is also found in healthcare despite the extensive information asymmetry (Anhang Price et al. 2014). In U.S. hospitals, for example, Cheon et al. (2019) show that patient satisfaction is commonly explained by objective hospital performance indicators, such as clinical process scores and 30-day readmission rates. With a sample of surgical hospitals, Tsai, Orav, and Jha (2015) also show that patients are more satisfied in hospitals that provide high quality and efficient surgical care with shorter lengths of stay, higher surgical process quality, lower surgical readmission rates, and lower mortality rates.

## 4.4. Theoretical Expectations

### 4.4.1. Citizens' evaluations of service performance

The previous literature has shown that citizens' evaluations do reflect the actual quality of public service, suggesting that citizens are able to make sound judgments regarding service performance. The literature on the anti-public bias, however, suggests

[36] Some studies, however, suggest a weak relationship between archival measures of performance and citizen satisfaction (e.g., Brown and Coulter 1983; Kelly 2003; Kelly and Swindell 2002).

that not only do citizens perceive the performance of public organizations more negatively compared to private organizations but also they interpret performance information with a bias against the public sector. Marvel (2015), for example, shows that citizens rate public and private organizations differently based on identical favorable performance information. Baekgaard and Serritzlew (2016) argue that prior beliefs (specifically, attitudes toward public service provision) systematically bias the way individuals process performance information. Their experiment in a Danish hospital setting supports this claim, showing that citizens tend to judge identical performance information differently based on their prior preference for the public or private sector (Baekgaard and Serritzlew 2016). If citizens interpret objective performance information based on their prior beliefs, and if their prior beliefs are biased against the public sector, an association between objective performance indicators and citizens' evaluations would be weaker for public organizations than for private organizations. Put differently, due to the anti-public bias, citizens tend to give less favorable evaluations to public organizations compared with private organizations for the equivalent performance indicators.

Different levels of expectations for public and private organizations may also play a role in shaping citizens' perceptions. Public organizations may get less credit than their private counterparts for equivalent service quality because citizens tend to have a higher expectation of the public sector and often apply higher standards to public organizations compared to private organizations (Rainey 2009). Citizens, for example,

may expect public organizations to be both efficient and equitable in the service delivery process, whereas they may expect private organizations to be efficient only.

Based on the expectancy-disconfirmation model (EDM), citizens are likely to be dissatisfied when perceived performance falls short of their expectations, whereas they are likely to be satisfied when perceived performance exceeds expectations (Jacobsen, Snyder, and Saultz 2015; James 2009; Morgeson 2013; Poister and Thomas 2011; Van Ryzin 2004, 2006, 2013). Even if public and private organizations provide equivalent service, citizens would be less satisfied with public organizations when they have higher normative expectations for public agencies because the gap between the prior expectation and the experience of service quality would be large for public agencies.[37]

Perceptual bias also exists in citizens' evaluations of nonprofit sector performance. Studies have found that citizens tend to associate nonprofit organizations with trustworthiness and warmth, and for-profit organizations with effectiveness and competence (Aaker, Vohs, and Mogilner 2010; Drevs, Tscheulin, and Lindenmeier 2014; Handy et al. 2010; Schlesinger, Mitchell, and Gray 2004a, 2004b). Scholars also suggest that nonprofit ownership does not seem to be used as a signal of high quality (Malani and David 2008), and service users often choose for-profit over nonprofit providers even when nonprofits outperform for-profits (Ben-Ner, Hamann, and Ren 2018).

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[37] Citizen expectations can play a key role in shaping their perceptions of service performance (Jacobsen, Snyder, and Saultz 2015; Poister and Thomas 2011). James (2011, 1420) notes that expectations include both a normative element ("what citizens think performance should be") and a positive element ("what citizens think service performance will be").

One interesting condition that may facilitate the sector bias in the perceptions of performance is the level of information asymmetry. Ben-Ner, Hamann, and Ren (2018) argue that individuals are more likely to use ownership as a quality signal in a policy area with a great deal of information asymmetry, such as healthcare. In elderly healthcare, for example, they show that consumers who use ownership as a selection criterion are more likely to choose for-profit over nonprofit nursing homes even though nonprofit facilities are superior in the quality of care.[38] In the choice between for-profit and government-owned facilities, those who choose on the basis of ownership status are more likely to end up in for-profit facilities over government-owned facilities because they perceive the for-profit sector to be superior.

Overall, previous studies have suggested that ownership plays a significant role in shaping citizens' perceptions of service performance regardless of actual quality. The current study focuses on the relationship between objective quality indicators and service users' perceptual evaluations in hospitals where information asymmetry is high and tests whether public ownership influences this link. Based on the previous findings supporting a significant association between objective performance indicators and perceptual evaluations in healthcare (Cheon et al. 2019; Tsai et al. 2015), I first expect that archival hospital performance indicators are significantly related to patient satisfaction in general. I then hypothesize that patients are likely to evaluate public hospitals as less favorable than for-profit hospitals for the equivalent quality indicators due to the extensive

[38] But also see Ballou (2005), Handy et al. (2010), and Schlesinger et al. (2004a).

information asymmetry and the anti-public sector bias. Similarly, I hypothesize that nonprofit hospitals would get less credit for equivalent performance than for-profit hospitals given the perceptions of the superiority of for-profit over nonprofit ownership.

Hypothesis 4-1a. The relationship between objective performance indicators and patients' evaluations of service quality in public hospitals will be weaker than in for-profit hospitals.

Hypothesis 4-1b. The relationship between objective performance indicators and patients' evaluations of service quality in nonprofit hospitals will be weaker than in for-profit hospitals.

### 4.4.2. Market competition and citizens' evaluations of performance

In many policy areas, public, nonprofit, and for-profit providers coexist, deliver similar services, and compete with each other for resources and clients in the same market. External market constraints often lead these organizations to pursue different strategies (Johansen and Zhu 2014), and these constraints may influence how citizens see service providers. As market competition increases, organizations seek a comparative advantage over others by either raising the service quality or lowering the service price. The quality and price distribution in equilibrium depends on a large number of factors, such as organizational size, resources, and related costs, but ownership status can be also a crucial factor.

Unlike for-profit organizations that focus on maximizing profit, government-owned organizations are not compensated by the surplus of revenues over expenses and

tend to be subject to greater political oversight (Rainey 2009). Public organizations may also be under greater public pressure to provide quality service and set a good example in a market that prevents them from lowering service quality. Making a profit is also not the priority of nonprofits, and particularly the prohibition on distribution of profits to members may reduce incentives to lower costs and service quality even in a competitive market. Instead, nonprofit organizations tend to be more dedicated to their mission and goals related to service quality and patient well-being as competition increases.

Some nonprofits may be controlled by consumers who care about quality service, which prevents them from lowering the quality (Ben-Ner and Van Hoomissen 1991; Weisbrod 1988). Moreover, nonprofits also face oversight from their boards of directors, who care about reputation and are less likely to lower the quality (Brooks 2002). For-profits, by contrast, are more likely to focus on service costs and maximize profit as competition increases.[39] In sum, public and nonprofit organizations tend to focus on quality, while for-profit organizations tend to prioritize efficiency in a competitive market (Johansen and Zhu 2014).

In a service area with extensive information asymmetry, divergence in strategies to deal with market competition can be more conspicuous. In healthcare, for example, service providers have better knowledge of the essential attributes of their healthcare quality than patients do, and this situation offers the opportunity to exploit their superior information (Ben-Ner, Hamann, and Ren 2018). For-profit providers may have greater

[39] But there might be exceptions to this claim. Service markets can be segmented, and the segmentation may generate submarkets of for-profit firms that compete more on quality than price.

incentives to derive benefit from asymmetric information to attract more clients with reduced costs as competition increases (Spector, Selden, and Cohen 1998). This would make more sense to offer lower quality and take the profits if customers cannot judge quality.

Public and nonprofit providers, however, may be less motivated by profit and therefore less likely to take advantage of asymmetric information at patients' expense even in a competitive market (Amirkhanyan, Kim, Lambright 2008; Ben-Ner, Hamann, and Ren 2018; Weisbrod and Schlesinger 1986). In elderly healthcare, existing literature also shows that for-profit nursing homes provide lower quality, especially in unobserved dimensions of service, to gain more profit under extensive information asymmetry, while nonprofit nursing homes provide better quality (e.g., Ben-Ner, Karaca-Mandic, and Ren 2012).

Based on the discussion, I expect that public and nonprofit hospitals are more likely to increase service quality, whereas for-profit hospitals tend to lower the prices as competition increases. In a competitive market, therefore, patients in public and nonprofit hospitals are more likely to be satisfied with the increased quality of care than patients in for-profit hospitals.

Hypothesis 4-2a. Patients are more likely to be satisfied with public hospitals than for-profit hospitals as market competition increases.

Hypothesis 4-2b. Patients are more likely to be satisfied with nonprofit hospitals than for-profit hospitals as market competition increases.

### 4.5. Research Context

This study tests the role of ownership in the relationship between objective performance indicators and perceptual evaluations in the U.S. healthcare context. Frontline service providers, such as hospitals, implement federal and state programs that significantly affect policy outcomes and citizens' well-being (Hicklin and Godwin 2009). The provision of healthcare service in the United States is delivered through for-profit, nonprofit, and government-owned facilities. Although these public, nonprofit, and for-profit hospitals are different in terms of legal property ownership and their main revenue sources (government funding vs. charitable donations vs. sale for services), their core service production and procedures share similarities (Johansen and Zhu 2014). In addition, all three types of hospitals compete with each other and face the same set of laws and government regulations in a fee-for-service market system.

U.S. hospitals provide a suitable research setting for this study not only because of the co-existence of public, nonprofit, and for-profit providers but also because of the existence of standardized hospitals performance indicators that allow us to make *apples to apples* comparisons across hospitals. Since 2006, CMS initiates the VBP Program to produce comparable data from the patient's perspective on the quality of care and archival quality indicators that allow meaningful comparisons between hospitals. Since the Medicare Modernization Act (MMA) enacted in 2003, which links performance

indicators to financial incentives, about 98% of hospitals in the United States have begun reporting their performance to CMS.[40]

From a theoretical standpoint, hospitals make a particularly interesting case because of high levels of information asymmetry that can limit consumer sovereignty and valid assessments of service quality. Healthcare is an infrequently used but important service where patients know little about service quality. Under extensive information asymmetry individuals tend to rely on limited sources of information. In hospitals, for example, patients are influenced by symbolic factors, such as organizational reputation and ownership status, because they are constrained by limited time, options, and information availability (Ben-Ner, Hamann, and Ren 2018).[41] If individuals tend to use ownership as a signal of service quality and do not actively seek additional information, the ownership signal may lead them to misconstrue service quality provided by public providers due to its negative stereotype. In this case, even if public hospitals deliver high-quality care, they would get less credit for it compared to their for-profit counterparts.

### 4.6. Data and Methods

This research combines multiple databases to explore how patients perceive the quality of care across public, nonprofit, and for-profit hospitals. This study first uses the

[40] For more details, see the Hospital Consumer Assessment of Healthcare Providers and Systems website (http://www.hcahpsonline.org).
[41] In addition, patients' perceptions of healthcare can be greatly affected by outcome bias.

2013 Hospital Compare (HC) data, which are part of the CMS hospital quality initiative. The data include information about the quality of care over 3,500 Medicare-certified hospitals across the United States in 2013. Specifically, with the Hospital Compare data, I focus on the VBP Program, which implements value-based purchasing to the payment system that accounts for the largest share of Medicare spending, affecting payment for inpatient stays. The Hospital VBP program utilizes the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores to allow fair comparisons across hospitals. The HCAHPS survey is administered to a random sample of adult patients with a variety of medical conditions between 48 hours and 6 weeks after discharge throughout the year. HCAHPS scores are based on patient surveys, and the survey is not restricted to Medicare beneficiaries. CMS cleans, adjusts and analyzes the data, and then publishes participating hospitals' HCAHPS results on the Hospital Compare website.[42]

This study also uses the process of care measures reported under the Hospital Inpatient Quality Reporting (IQR) and Outpatient Quality Reporting (OQR) programs. Hospital Compare data also provide additional clinical outcomes such as unplanned hospital visits (unplanned 30-day readmission rates) and deaths rates (30-day mortality rates). CMS calculates hospital 30-day readmission and mortality rates based on Medicare claims, eligibility information, and VA administrative information. When calculating these rates, CMS adjusts for patient characteristics, such as age, gender, past medical history, and other diseases or conditions—that may make death or readmission

[42] For more details, see the Hospital Compare website (https://www.medicare.gov/hospitalcompare).

more likely even if a hospital provides quality care—to make fair comparisons between hospitals.

I draw hospital characteristics from the 2013 American Hospital Association (hereafter AHA) annual survey database. The 2013 AHA annual survey data include various hospital characteristics such as hospital ownership, service types, the number of beds, staff quality, technological support, and the percentage of Medicare and Medicaid spending.

Environmental variables come from the ACS data by U.S. Census Bureau. The ACS data provide demographic and economic characteristics of each county, such as population density, unemployment rate, poverty rate. In the analysis, I use 5-year estimates (2009–2013) because these data cover all areas and are more precise than 1-year estimates.

For the model specification, this study employs ordinary least squares (OLS) regression analysis. Robust standard errors are used to deal with heteroscedasticity. The state fixed effects control for time-invariant state-level factors that may affect patients' evaluations of healthcare quality, such as differences in state regulatory administration or state Medicaid coverage. The unit of analysis is a hospital.

### 4.7. Measures

*Patients' evaluations of healthcare quality*

The dependent variable of this study is patients' satisfaction with hospital care. A random sample of patients is asked to respond to the multiple dimensions of hospital

performance within 42 days after discharge. The 2013 HCAHPS survey includes eight subcategories: (1) communication with nurses, (2) communication with doctors, (3) responsiveness of hospital staff, (4) pain management, (5) communication about medicines, (6) cleanliness and quietness of hospital environment, (7) discharge information, and (8) overall rating of the hospital (for details, see Table A.8 in the Appendix).

The Hospital VBP Program provides both raw patient satisfaction scores and adjusted scores based on patient characteristics, and this study uses adjusted patient satisfaction scores. Extensive health literature suggests that patients' characteristics (e.g., gender, race, age, income, past medical history) can affect their perspectives on healthcare (Fan et al., 2005). Patient characteristics therefore disproportionately affect raw scores. Moreover, raw scores may have selection bias given that hospital section is not random. The hospitals located in a wealthy neighborhood, for example, tend to achieve better health outcomes and higher patient satisfaction due to their affluent patients whereas the hospitals in the deprived neighborhood are more likely to have poor health outcomes and lower satisfaction because of unhealthy lifestyles (Chatterjee et al. 2012). This research therefore uses the adjusted scores to minimize potential selection-bias and make comparisons between hospitals fair.

*Objective quality indicators and ownership*

Objective performance indicators of health care are the key independent variables of this study. This study uses three quality indicators: (1) clinical process of care scores, (2) outcome domain scores (reversed mortality rates), and (3) the average of

30-day readmission rates. These measures represent healthcare quality well because they cover the major procedures and outcomes of hospital care (Tsai et al. 2013). The similar methodology of the adjusted patient satisfaction also applies to these quality indicators. All three measures—process of care, outcome scores, and 30-day readmission rates—are risk-adjusted standardized by CMS, considering patient characteristics that can affect outcomes.

The clinical process of care score represents whether a hospital provides timely and effective care. This domain is comprised of selected Hospital IQR program's measures from acute myocardial infarction, healthcare-associated infections, heart failure, pneumonia, and the Surgical Care Improvement Project. The process of care domain has multiple subdimension indicators, such as whether patients received fibrinolytic therapy within 30 minutes of hospital arrival, primary percutaneous coronary intervention within 90 minutes of hospital arrival, discharge instructions, prophylactic antibiotics within one hour prior to surgical incision, and appropriate venous thromboembolism.

Outcome scores represent the survival rates derived from mortality rates. Mortality rates are one of the most important hospital outcomes. The Hospital VBP Program calculates outcome scores (the survival rates) by estimating the reversed 30-day mortality rates for acute myocardial infarction, heart failure, and pneumonia. These mortality rates are also risk standardized. Because the scores come from reversed mortality estimates, higher values for the outcome scores represent more favorable performance.

Thirty-day readmission rates indicate the rate of unplanned readmission to a hospital in the 30 days after discharge from hospitalization. Unplanned readmissions rates also are considered an important adverse patient outcome indicator that captures healthcare quality and efficiency (McIlvennan et al. 2015).[43] In an effort to reduce readmission rates, CMS requires hospitals to report 30-day readmission rates from heart failure, heart attack, and pneumonia. These rates adjust for patient characteristics that may make returning to the hospital more likely. I calculate the average rate of these three indicators to create an overall 30-day readmission rate. Readmission rates are negative outcome measures; therefore, lower values for readmission rates indicate a higher quality of hospital care.

Another key variable of this study is hospital ownership. I follow the AHA categorization of hospitals and code all registered hospitals into three categories: public, nonprofit, and for-profit hospitals. Public hospitals include facilities that are owned by federal, state, city, county government, or hospital district/authority. Nonprofit hospitals are church-operated hospitals and all other nonprofit hospitals. For-profit hospitals include hospital corporations, partnership hospitals, and individual-owned hospitals. The study sample includes 301 government-owned hospitals (12.6%), 1,536 nonprofit hospitals (64.2%), and 555 for-profit hospitals (23.2%).

[43] Among several types of readmission rates, 30-day readmission rates are most frequently used to capture the quality care because readmissions after more than 30 days are more likely to be affected by other complicating illnesses, patients' behaviors, or care provided after hospital discharge (Boulding et al. 2011).

*Facility-level controls*

The models control for three sets of hospital characteristics drawing data from the AHA annual survey data. The first group of controls focuses on the structural dimension that can affect patient satisfaction. The total number of full-time employees (logged) is included to capture hospital size, which is one of the key structural variables. Hospital revenue information is also considered to capture financial structure. Revenue sources can explain a lot about hospital characteristics, but this information is rarely opened to the public. I instead use common proxy measures—the percentage of Medicaid days and the percentage of Medicare days—to consider a portion of Medicaid and Medicare reimbursement in hospital revenue (Cheon et al. 2019; Sloan and Vraciu 1983).

The second set of controls include hospital resources. Both human and technical resources can influence patients' evaluations of hospitals and the quality of care. The number of employees per 10 beds (logged) as controlled to capture relative personnel resources. Staff quality is another important human resource factor in healthcare. I include the percentage of full-time registered nurses (RNs) among the total number of full-time employees. Having more highly qualified staff is expected to improve the quality of care as well as patient satisfaction. Technological support represents whether or not a hospital has an assistive technology center in their facility (yes = 1, no = 0).

Third, the composition of caseloads can capture a hospital's task characteristics. The models control for the percentage of acute beds linked to chronic diseases, the recovery from surgery, and severity of illness. Acute care requires additional resources

(e.g., clinical staff with technical and medical expertise) and thereby increases task difficulty of a hospital. The percentage of acute beds is expected to be significantly associated with patient satisfaction. Lastly, I include a dummy variable for rural hospitals to control for a hospital's location (yes = 1, no = 0).

*County-level controls*

The citizen satisfaction literature suggests that citizens' evaluations of service quality can be influenced by jurisdiction-level factors and individual-level factors (Lyons, Lowery, and DeHoog 1992). To consider the role of neighborhood characteristics, I control for demographic and economic environment factors. First, the healthcare market structure can affect hospitals' strategies (Johansen and Zhu 2014; Maynard 1991) and influence patients' evaluations of hospitals. The models control for market competition measured by using two important factors in the healthcare market—the concentration of healthcare providers and the degree of specialization in a local health market (Robinson 2011).

First, public, nonprofit, and for-profit hospitals in the U.S. healthcare market compete for clients and *ceteris paribus* "market competition is high in an area with a higher concentration of hospitals and less in an area with a lower concentration of hospitals" (Johansen and Zhu 2014, 168). Second, hospitals target different clients based on their specialized services; for example, children's hospitals attract children whereas general hospitals attract adults. Even in a high concentration area, a few specialized hospitals can enjoy the monopoly status regarding a particular service. Considering these two factors, I count the number of hospitals by specialized service codes within a unique

service area, which is identified by the AHA (Johansen and Zhu 2014). Low values indicate low competition at the particular service type in a local market and high values represent high competition in that local area.

Population density is a crucial predictor of healthcare quality, and all models include logged population density. Local economic conditions are also considered in the analysis. Specifically, I control for poverty rate, unemployment rate, and population with no health insurance at the county level. Based on the previous literature suggesting that citizens in a low-income area are less likely to be satisfied with service quality, I expect that these variables would be negatively associated with patient satisfaction. Descriptive statistics of all variables are shown in Table A.9 in the Appendix.

### 4.8. Findings

Before conducting a series of regression models, I analyze the correlation among patient satisfaction, objective performance measures, and hospital ownership. Table 4.1 shows that patient satisfaction is moderately correlated with the clinical process score ($r = 0.11$, $p < 0.000$), the outcome score ($r = –0.10$, $p < 0.000$), and the 30-day readmission rate ($r = –0.14$, $p < 0.000$). While public and nonprofit ownership positively correlates with patient satisfaction, for-profit ownership negatively correlates with it.

**Table 4.1. Correlation Among Key Variables**

| | Patient satisfaction | Clinical process | Outcome score | 30-day readmission rates |
|---|---|---|---|---|
| Patient satisfaction | 1 | | | |
| Clinical process | 0.113* | 1 | | |
| Outcome score | –0.104* | 0.045* | 1 | |
| 30-day readmission rates | –0.144* | –0.017 | 0.031 | 1 |
| Public hospital | 0.078* | –0.134* | –0.061* | 0.026 |
| Nonprofit hospital | 0.089* | –0.034 | 0.092* | –0.090* |
| For-profit hospital | –0.169* | 0.151* | –0.057* | 0.083* |

*Note.* * $p < 0.05$

Table 4.2 shows the linear model estimates for the association between objective hospital performance indicators and patients' perceptual evaluations of healthcare. Despite the common beliefs that for-profit providers outperform public or nonprofit providers, results from U.S. hospitals show the opposite picture. Both public and nonprofit ownerships are statistically significant and positively associated with patient satisfaction. Moreover, the unstandardized coefficients of public and nonprofit hospitals are quite large given the range of patient satisfaction (between 3 and 99). On average, public and nonprofit hospitals achieve 7~9-point higher scores than their for-profit counterparts, holding other variables constant. This finding suggests that patients in public and nonprofit hospitals are more likely to be satisfied with the quality of care than patients in for-profit hospitals, all other things being equal.

The relationships between objective quality measures and patient satisfaction are consistent with earlier research. Both clinical process and 30-day readmission significantly relate to patient satisfaction, even controlling for a series of hospital

resources and constraints as well as environmental factors. The inclusion of these controls supports the conclusion that objective quality indicators and patients' perceptual evaluations have some degree of convergent validity in U.S. hospitals. Outcomes scores, however, are not statistically significantly related to patient satisfaction. Detailed discussion on this finding will be presented in a later section.

Among the hospital characteristics, hospital size measured with a total number of employees shows a negative and significant coefficient suggesting that patients are less likely to be satisfied with large hospitals than small hospitals. Having more human resources positively associates with higher patient satisfaction as expected. Medicaid discharges negatively relate to patient satisfaction. Patients in rural hospitals are happier with the care quality than patients in urban areas, which is not in the predicted direction.

Among environmental factors, unemployment rates explain the most patient satisfaction. Patients are significantly less satisfied with healthcare quality in an area with higher unemployment rates. Possible explanations about this result is either a halo effect or poor people without Medicaid get worse treatment. This finding is especially interesting given that the models already control for poverty rates and lack of health insurance in a county.

**Table 4.2. Objective and Subjective Performance Assessment**

| Dependent variable = Patient satisfaction | | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| Public hospital | 8.969*** | 7.928*** | 7.850*** |
| | (1.487) | (1.472) | (1.475) |
| Nonprofit hospital | 8.540*** | 7.948*** | 7.786*** |
| | (1.126) | (1.128) | (1.131) |
| Clinical process | 0.121*** | | |
| | (0.021) | | |
| Outcome score | | 0.004 | |
| | | (0.018) | |
| 30–day readmission rates | | | –0.638* |
| | | | (0.314) |
| Total employees | –3.403*** | –3.585*** | –3.825*** |
| | (1.029) | (1.066) | (1.071) |
| Total employees per 10 beds | 7.922*** | 8.085*** | 8.210*** |
| | (1.242) | (1.254) | (1.257) |
| Medicaid discharges | –2.436*** | –2.518*** | –2.346*** |
| | (0.643) | (0.650) | (0.655) |
| Medicare discharges | 0.671 | 0.776 | 0.649 |
| | (0.728) | (0.760) | (0.759) |
| Fulltime RNs | 0.029 | 0.047 | 0.044 |
| | (0.055) | (0.056) | (0.055) |
| Technical support | –0.876 | –0.835 | –0.872 |
| | (0.820) | (0.837) | (0.838) |
| Acute beds | –0.119 | –0.176 | –0.170 |
| | (0.121) | (0.111) | (0.114) |
| Rural hospitals | 4.342*** | 4.403*** | 4.380*** |
| | (1.151) | (1.171) | (1.169) |
| Market competition | –0.088 | –0.083 | –0.078 |
| | (0.082) | (0.082) | (0.082) |
| Population density | –0.333 | –0.165 | –0.068 |
| | (0.347) | (0.351) | (0.352) |
| Poverty rate | 0.168+ | 0.126 | 0.141 |
| | (0.087) | (0.089) | (0.089) |
| Unemployed rate | –0.893* | –0.942* | –0.896* |
| | (0.372) | (0.374) | (0.373) |
| No health insurance | –0.212+ | –0.178 | –0.179 |
| | (0.125) | (0.129) | (0.129) |
| State fixed effects | Yes | Yes | Yes |
| Adjusted *R*-squared | 0.302 | 0.289 | 0.290 |
| *N* | 1,925 | 1,925 | 1,924 |

*Note.* The reference group for public and nonprofit hospitals is for-profit hospitals. Robust standard errors shown in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The key interest of this study is whether ownership status shapes the relationship between objective quality indicators and patient satisfaction. To test the hypotheses, Table 4.3 includes the interaction terms between each of objective performance measures and public/nonprofit dummies. A reference group here is for-profits. Model (1) in Table 4.3 shows the interactions between the clinical process and ownership of public and nonprofit are not statistically significant. This result suggests there are no systematic sector differences in patients' evaluations for equivalent care quality.

Turning to Models (2) and (3), I find evidence that ownership moderates the relationship between outcome scores and patient satisfaction. The interaction between public hospitals and outcome scores in Model (2) are negative and significant, suggesting that public ownership decreases the positive effect of outcome scores on patient satisfaction. The marginal effect of outcome scores in public hospitals is –0.095 whereas the marginal effect in for-profit hospitals is 0.063, all other things being equal. This result is simply that public hospitals get rated lower as their performance goes up, while for-profit hospitals get rated higher as their performance goes up. This means that for-profit hospitals receive much more credit for good outcomes than public hospitals.

Figure 4.1 presents predicted patient satisfaction in public and for-profit hospitals varying levels of outcome scores (Model (2) in Table 4.3). The solid line illustrates the relationship for public hospitals and the dashed line shows the relationship for for-profit hospitals. The slope of the dashed line is positive, suggesting that outcome scores have a positive effect on patient satisfaction in for-profit hospitals. The slope of the solid line is negative, however, indicating the relationship is the opposite in public hospitals.

In Model (3) in Table 4.3, the key variable is 30-day readmission rates, which are reversed outcomes; therefore, strong and negative relationship is a good thing. The interaction between nonprofit and 30-day readmission rates is positive and significant (with a significance level of 0.1), suggesting that nonprofit ownership decreases the effect of 30-day readmission rates on patient satisfaction. The marginal effect of 30-day readmission rates in nonprofit hospitals is –0.408, while it is –1.758 in for-profit hospitals. Because the negative relationship is a good thing, one can interpret this result as for-profit hospitals receive more credit than nonprofit hospitals for lower readmission rates.

Figure 4.2 illustrates the predicted effects of 30-day readmission rates on patient satisfaction (Model (3) in Table 4.3). Again, the 30-day readmission rate is a reverse outcome, and low values represent good performance. Here, the solid line represents nonprofit hospitals, and the dashed line indicates for-profit hospitals. Both slops are negative, suggesting that patients are more satisfied with hospitals as 30-day readmission rates decrease. The slope for for-profit hospitals is much steeper than nonprofit hospitals, indicating that 30-day readmission rates and patient satisfaction are more closely aligned in for-profit hospitals than nonprofit hospitals.

**Table 4.3. The Role of Ownership in the Relationship Between Objective and Subjective Assessment**

| Dependent variable = Patient satisfaction | | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| Public hospital | 7.926+ | 12.333*** | –16.557 |
| | (4.562) | (2.547) | (20.090) |
| Nonprofit hospital | 5.892 | 9.533*** | –19.204 |
| | (3.723) | (1.865) | (14.983) |
| Clinical process | 0.091+ | | |
| | (0.048) | | |
| Public hospital × Clinical process | 0.013 | | |
| | (0.073) | | |
| Nonprofit hospital × Clinical process | 0.042 | | |
| | (0.054) | | |
| Outcome score | | 0.063 | |
| | | (0.049) | |
| Public hospital × Outcome score | | –0.158* | |
| | | (0.076) | |
| Nonprofit hospital × Outcome score | | –0.057 | |
| | | (0.052) | |
| 30–day readmission rates | | | –1.758** |
| | | | (0.669) |
| Public hospital × 30-day readmission rates | | | 1.216 |
| | | | (1.003) |
| Nonprofit hospital × 30-day readmission rates | | | 1.350+ |
| | | | (0.744) |
| Total employees | –3.390** | –3.649*** | –3.837*** |
| | (1.031) | (1.062) | (1.081) |
| Total employees per 10 beds | 7.927*** | 8.083*** | 8.251*** |
| | (1.242) | (1.241) | (1.265) |
| Medicaid discharges | –2.449*** | –2.448*** | –2.318*** |
| | (0.644) | (0.649) | (0.655) |
| Medicare discharges | 0.706 | 0.779 | 0.620 |
| | (0.730) | (0.748) | (0.762) |
| Fulltime RNs | 0.030 | 0.041 | 0.042 |
| | (0.055) | (0.056) | (0.055) |
| Technical support | –0.905 | –0.880 | –0.886 |
| | (0.820) | (0.838) | (0.839) |
| Acute beds | –0.115 | –0.177 | –0.173 |
| | (0.123) | (0.112) | (0.112) |

**Table 4.3. Continued**

| Dependent variable = Patient satisfaction | | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| Rural hospitals | 4.315*** | 4.333*** | 4.306*** |
| | (1.149) | (1.170) | (1.171) |
| Market competition | –0.087 | –0.076 | –0.076 |
| | (0.082) | (0.081) | (0.081) |
| Population density | –0.360 | –0.160 | –0.107 |
| | (0.348) | (0.351) | (0.352) |
| Poverty rate | 0.165+ | 0.121 | 0.137 |
| | (0.088) | (0.089) | (0.089) |
| Unemployed rate | –0.892* | –0.957* | –0.853* |
| | (0.373) | (0.374) | (0.375) |
| No health insurance | –0.207 | –0.186 | –0.189 |
| | (0.127) | (0.130) | (0.129) |
| State fixed effects | Yes | Yes | Yes |
| Adjusted *R*-squared | 0.302 | 0.290 | 0.291 |
| *N* | 1,925 | 1,925 | 1,924 |

*Note.* The reference group for public and nonprofit hospitals is for-profit hospitals. Robust standard errors shown in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

**Figure 4.1. Predicted Effects of Outcome Scores in Public and For-profit Hospitals**

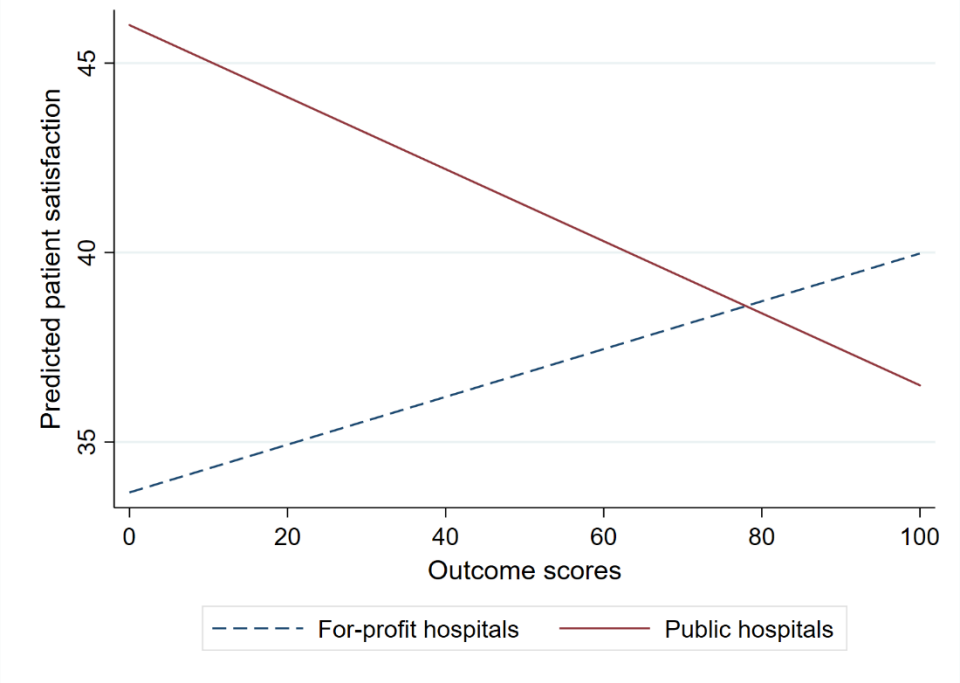
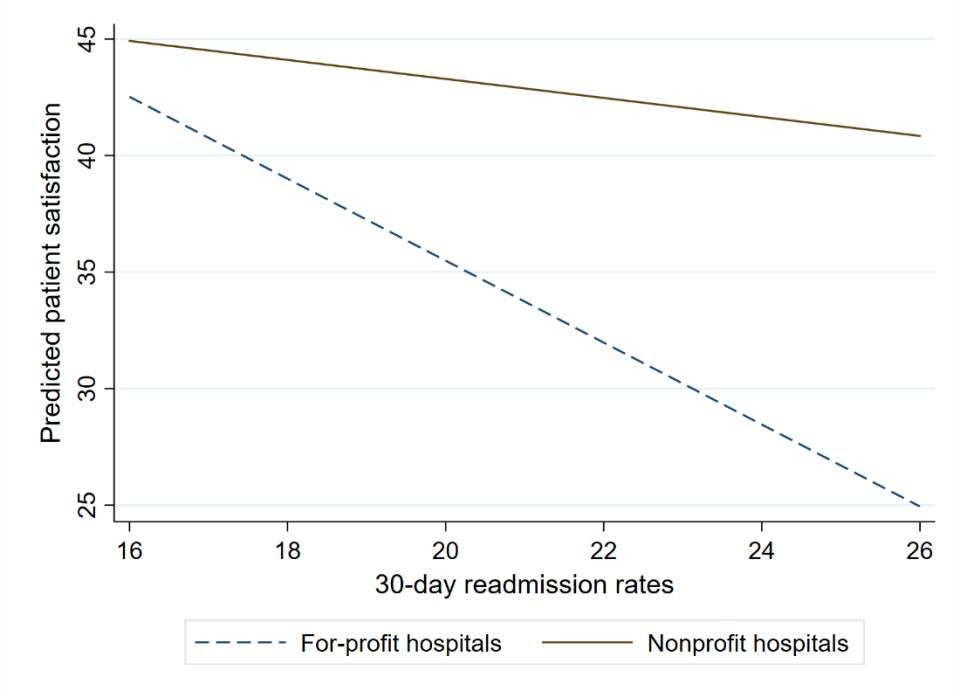



**Figure 4.2. Predicted Effects of 30-Day Readmission Rates in Nonprofit and For-profit Hospitals**



To test how market competition influences patients' evaluations of public, nonprofit, and for-profit hospitals, Table 4.4 includes the interactions between ownership and market competition. While the interaction between the public sector and market competition is not statistically significant, the interaction between the nonprofit sector and market competition is consistently positive and significant across all models. In Model (1), for example, the marginal effect of market competition on patient satisfaction is –0.357 in the for-profit sector, while it is 0.018 in the nonprofit sector. This finding suggests market competition has a negative impact in the for-profit sector and is almost zero in the nonprofit sector.

The finding on the effect of market competition on patients' evaluations of hospitals implies that market competition may also play a role in shaping the interactive relationship between objective quality indicators and ownership on patient satisfaction. To test this hypothesis, I present additional models that include three-way interactions between ownership, market competition, and one for each of the quality variables. Again, the dependent variable is patient satisfaction, and a reference group is for-profits.

**Table 4.4. Market Competition and Subjective Assessment of Service Quality**

| Dependent variable = Patient satisfaction | | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| Public hospital | 7.184* | 6.034+ | 6.147+ |
| | (3.632) | (3.646) | (3.634) |
| Nonprofit hospital | 3.339 | 2.543 | 2.557 |
| | (2.983) | (3.019) | (3.020) |
| Market competition | –0.357+ | –0.363* | –0.348+ |
| | (0.182) | (0.185) | (0.185) |
| Public hospital × Market competition | 0.123 | 0.131 | 0.117 |
| | (0.240) | (0.243) | (0.242) |
| Nonprofit hospital × Market competition | 0.375* | 0.390* | 0.378* |
| | (0.189) | (0.192) | (0.192) |
| Clinical process | 0.120*** | | |
| | (0.021) | | |
| Outcome score | | 0.004 | |
| | | (0.018) | |
| 30-day readmission rates | | | –0.617+ |
| | | | (0.315) |
| Total employees | –3.397*** | –3.576*** | –3.808*** |
| | (1.021) | (1.058) | (1.063) |
| Total employees per 10 beds | 7.814*** | 7.972*** | 8.097*** |
| | (1.226) | (1.238) | (1.241) |
| Medicaid discharges | –2.410*** | –2.492*** | –2.326*** |
| | (0.636) | (0.643) | (0.648) |
| Medicare discharges | 0.678 | 0.784 | 0.659 |
| | (0.723) | (0.756) | (0.756) |
| Fulltime RNs | 0.029 | 0.047 | 0.044 |
| | (0.055) | (0.056) | (0.055) |
| Technical support | –0.883 | –0.843 | –0.878 |
| | (0.820) | (0.837) | (0.838) |
| Acute beds | –0.124 | –0.180 | –0.174 |
| | (0.122) | (0.112) | (0.115) |
| Rural hospitals | 4.450*** | 4.513*** | 4.491*** |
| | (1.150) | (1.169) | (1.167) |
| Population density | –0.310 | –0.141 | –0.049 |
| | (0.348) | (0.352) | (0.353) |

**Table 4.4. Continued**

| Dependent variable = Patient satisfaction | | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| Poverty rate | 0.162+ | 0.121 | 0.135 |
| | (0.087) | (0.089) | (0.089) |
| Unemployed rate | –0.916* | –0.966** | –0.921* |
| | (0.372) | (0.373) | (0.373) |
| No health insurance | –0.211+ | –0.177 | –0.177 |
| | (0.126) | (0.130) | (0.130) |
| State fixed effects | Yes | Yes | Yes |
| Adjusted *R*-squared | 0.304 | 0.290 | 0.292 |
| *N* | 1,925 | 1,925 | 1,924 |

*Note.* The reference group for public and nonprofit hospitals is for-profit hospitals. Robust standard errors shown in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 4.5 presents abbreviated information from three additional regressions, each representing the model including a three-way interaction among ownership, market competition, and a quality indicator. A significant interaction among these three variables indicates that the interactive effect of ownership and the service quality on patient satisfaction is moderated by market competition. The three-way interaction term in Model (1) in Table 4.5 is indeed statistically significant and positive, suggesting the association between the public ownership and process of care scores can be enhanced as market competition increases.

**Table 4.5. Market Competition, Objective Performance Indicators, and Ownership**

| Dependent variable = Patient satisfaction | | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| Public hospital | 25.514* | 11.735+ | –55.150 |
| | (10.500) | (6.626) | (52.651) |
| Nonprofit hospital | 2.948 | 8.944 | –65.579 |
| | (8.873) | (5.448) | (41.464) |
| Market competition | 0.138 | 0.008 | –2.762 |
| | (0.496) | (0.325) | (2.235) |
| Public hospital × Market competition | –1.351+ | 0.014 | 2.697 |
| | (0.695) | (0.452) | (3.202) |
| Nonprofit hospital × Market competition | 0.191 | 0.018 | 3.532 |
| | (0.570) | (0.354) | (2.486) |
| Clinical process | 0.201+ | | |
| | (0.119) | | |
| Public hospital × Clinical process | –0.343+ | | |
| | (0.177) | | |
| Nonprofit hospital × Clinical process | 0.005 | | |
| | (0.137) | | |
| Market competition × Clinical process | –0.008 | | |
| | (0.008) | | |
| Public hospital × Market competition × Clinical process | 0.027* | | |
| | (0.012) | | |
| Nonprofit hospital × Market competition × Clinical process | 0.003 | | |
| | (0.009) | | |
| Outcome scores | | 0.227 | |
| | | (0.159) | |
| Public hospital × Outcome scores | | –0.218 | |
| | | (0.199) | |
| Nonprofit hospital × Outcome scores | | –0.221 | |
| | | (0.166) | |
| Market competition × Outcome scores | | –0.013 | |
| | | (0.011) | |
| Public hospital × Market competition × Outcome scores | | 0.006 | |
| | | (0.013) | |
| Nonprofit hospital × Market competition × Outcome scores | | 0.013 | |
| | | (0.011) | |

**Table 4.5. Continued**

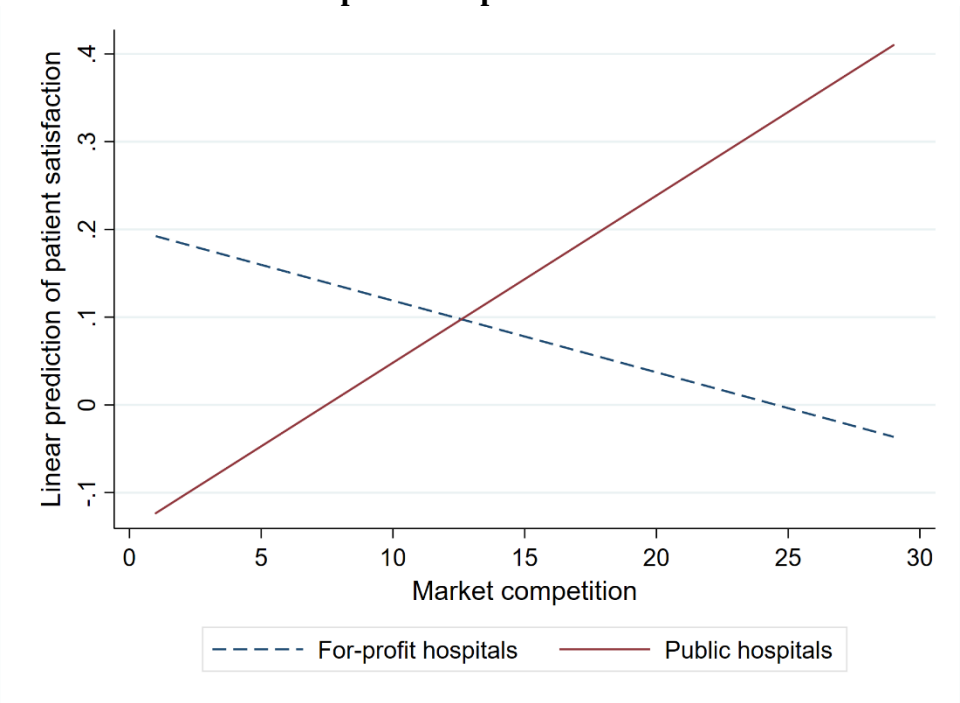
| Dependent variable = Patient satisfaction | | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| 30-day readmission rates | | | –3.380+ |
| | | | (1.873) |
| Public hospital × 30-day readmission rates | | | 3.099 |
| | | | (2.608) |
| Nonprofit hospital × 30-day readmission rates | | | 3.445+ |
| | | | (2.047) |
| Market competition × 30-day readmission rates | | | 0.123 |
| | | | (0.109) |
| Public hospital × Market competition × 30-day readmission rates | | | –0.131 |
| | | | (0.155) |
| Nonprofit hospital × Market competition × 30-day readmission rates | | | –0.160 |
| | | | (0.122) |
| Control included | Yes | Yes | Yes |
| State fixed effects | Yes | Yes | Yes |
| Adjusted *R*-squared | 0.304 | 0.291 | 0.291 |
| *N* | 1,925 | 1,925 | 1,924 |

*Note*. The reference group for public and nonprofit hospitals is for-profit hospitals. Robust standard errors shown in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

To more intuitively interpret the three-way interaction, I plot the predicted relationship between patient satisfaction and process scores for public and for-profit hospitals at different levels of market competition (Model (1) in Table 4.5). Figure 4.3 presents the predicted plot of patient satisfaction is depicted for the average value of process scores with a full range of market competition. When market competition is low and the process score is average, predicted patient satisfaction is higher in for-profit hospitals than in public hospitals (holding all other factors constant). When market competition is high and the process score is on average, however, predicted patient

satisfaction is higher in public hospitals than in for-profit hospitals. In sum, the findings partially support the role of market competition in shaping the relationship between objective performance and ownership.

**Figure 4.3. The Predicted Marginal Effects of Process Scores on Patient Satisfaction for Public and For-profit Hospitals**




## 4.9. Discussion and Conclusion

"From birth to death, the idea that public sector organizations are inefficient, wasteful, and inferior to private sector organizations is consistently drilled into Americans' heads" (Marvel 2016, 143). This anti-public sector bias is important because it directly affects citizens' support for the government as well as their choices between public and private in the service provision. This essay contributes to our understanding of how provider ownership influences the relationship between objective performance

information and citizens' evaluations of service and what role market competition plays in shaping citizen satisfaction in the service delivery process.

Evidence from U.S. hospitals reveals that patients' perceptual evaluations of healthcare quality are significantly associated with objective hospital performance indicators, but the extent to which these two measures are correlated varies across public, nonprofit, and for-profit hospitals. Objective outcome indicators are more closely aligned with patient satisfaction in for-profit hospitals than in either public or nonprofit hospitals, suggesting public and nonprofit hospitals get less credit for quality care compared with their for-profit counterparts. This finding also implies the negative stereotype of the public sector not only shapes citizens' perception of performance itself (Goodsell 2004; Hvidman 2018) but also weakens the effect of objective performance indicators on citizen satisfaction.

While two outcome dimensions (outcome scores and 30-day readmission rates) support the sector bias in patients' evaluations, there are no significant sector differences in patients' evaluations of the clinical process. One possible explanation is that the sector bias may be more conspicuous when there are bad outcomes. The literature on citizens' attributions of blame suggests that public agencies are easy targets when things go wrong (James et al. 2016; Marvel and Girth 2016). Given that both outcome scores and 30-day readmission rates are calculated based on undesirable outcomes—such as deaths and unplanned hospital revisits due to complications—patients might blame public hospitals more than for-profit hospitals for such outcomes. In a similar vein, negativity bias in the relationship between performance and citizen' evaluations might facilitate the

mechanism (Boyne et al. 2009; James and Moseley 2014). The poor outcome may become more evident in a public hospital than in a for-profit hospital because information about bad outcomes can trigger the negative stereotype of the public sector.

The sector bias, however, tends to fade away as market competition increases. This study finds that patients are more likely to be satisfied with nonprofit than for-profit hospitals in a competitive market, and public hospitals get more credit for quality healthcare as competition increases. These outcomes might result from the heterogeneity in strategies to deal with market constraints across public, nonprofit, and for-profit hospitals (Johansen and Zhu 2014).

The previous literature implies that public and nonprofit hospitals tend to pursue service quality, whereas for-profit providers tend to care more about service costs as competition increases (Amirkhanyan, Kim, and Lambright 2008), and these different strategies may lead to different levels of patient satisfaction. Additional regression analyses support this mechanism (Table A.10 in the Appendix), showing that public hospitals are more likely to achieve higher outcome scores than for-profit hospitals, and nonprofit hospitals tend to outperform their for-profit counterparts in terms of 30-day readmission rates as market competition increases (interaction terms are significant with a significance level of 0.1).

It is important to discuss the limitations of the current study and the directions for future research. First, although this research uses responses from real patients with recent experiences that contribute to external validity, the analysis is conducted at the hospital level rather than the individual level due to limited data availability. Employing

individual-level data will benefit future research and allow for a better understanding of how individual citizens evaluate service quality based on objective performance indicators and the provider's ownership status.

Second, this paper focuses on healthcare, where information asymmetry can limit citizens' ability to make accurate judgments on quality, and whether the findings are generalizable in policy areas with less information asymmetry is an open question. The generalizability issue is particularly worth highlighting in the public sector bias research because policy context can play a significant role in shaping citizens' sector preferences. Studies from different policy areas often produce contrasting results (e.g., military service vs. package delivery).

This difference may come from the *degree of coerciveness* of policy, "the extent to which a tool restricts individual or group behavior as opposed to merely encouraging or discouraging it" (Salamon 2002b, 25). Citizens may prefer the public sector over the private sector in highly coercive policy fields, such as law enforcement and probation (*authority-oriented policies*), whereas they tend to choose private over public in minimally coercive policy areas, such as package delivery and street cleanliness (*service-oriented policies*). Future research should explore the policy contexts in which citizens show more or less anti-public bias.

How public and private ownership affect citizens' evaluations of service performance has been a core question in public administration because it relates to the fundamental question of who should deliver public services (Hvidman 2018; Wilson 1989). This study contributes to this conversation by highlighting the role of ownership

in shaping citizens' opinions about service quality and the way they interpret objective performance data. Further, this research highlights the role of market structure in shaping citizens' evaluations of service quality by showing that anti-public bias decreases in a competitive market.

# 5. CONCLUSIONS

Understanding how public, nonprofit, and for-profit organizations can contribute to successful public service provision has been and will continue to be a key question in public administration research and practice. Drawing from public administration and political science theories, this dissertation expands theoretical perspectives on public service provision through public, nonprofit, and for-profit organizations and provides practical implications for successful program outcomes. In sum, the findings from all three essays consistently support the notion that publicness matters in the public service process. The first essay shows that public and nonprofit organizations tend to comply with regulation and improve service quality, while for-profits decrease these facing increased competition in a fee-for-service market system. The second essay suggests that public, nonprofit, and for-profit managers tend to focus on different management strategies, and these managerial efforts have different effects on service performance across sectors. The third essay finds that public and nonprofit organizations tend to receive less credit than for-profit organizations for equivalent service quality; but this sector bias tends to fade away as market competition increases.

## 5.1. Implications for Theory

This dissertation provides important theoretical implications for our understanding of how and when organizational publicness matters in the public service process. Policy environments constrain the service delivery process for all types of

organizations. Classical theoretical works have highlighted the distinction between political and market constraints, particularly when defining public and private organizations (e.g., Bozeman 1987; Dahl and Lindblom 1953; Wamsely and Zald 1973). The traditional publicness theory suggests governmental organizations are more likely to respond to political forces rather than market forces. Alongside this theoretical expectation, it is often assumed that public agencies do not compete with others in a service market, therefore, private organizations can be more effective than public ones due to the benefits of market competition.

This dissertation challenges this conventional wisdom and contributes to the public administration theory. More specifically, based on the literature suggesting that governmental organizations also frequently face market forces and respond to increased competition (e.g., Johansen and Zhu 2014), this research provides a theoretical framework for different motivations for regulatory compliance across public, nonprofit, and for-profit organizations under increased competition. The empirical evidence from U.S. healthcare contrasts with the conventional wisdom that market competition works better in the private sector. Specifically, the findings suggest that increased competition negatively affects the private sector, while a well-functioning market mechanism benefits service delivery in the public and nonprofit sectors.

The second theoretical contribution of this dissertation is combining classic management theories and public–private distinction literature to investigate how the effect of management on performance varies across public, nonprofit, and for-profit organizations. In addition to incorporating both internal and external management, this

research also considers both quantity and quality aspects of management to provide a multidimensional view of the relationship between management and performance. This comprehensive approach contributes to the public management literature by helping us to gain a better understanding of what managers do to improve service performance and in which type of organization their management actions can be more effective.

Furthermore, this study takes structure into account when explaining the heterogeneous effects of management practices on performance. For example, empirical evidence suggests the effect of buffering strategies can be contingent on stability, particularly in the public sector. This finding provides a theoretical implication for the potential bifunctional model of management and structure in promoting program performance.

Third, performance assessment has been a critical topic in the public–private distinction research, not only because ownership itself has an impact on performance but also because there are fundamental differences in the ways that performance is evaluated by stakeholders. This dissertation focuses on performance assessment in the eyes of citizens and contributes to the literature on government performance by considering both archival performance information and perceptual sector bias. Particularly, this research investigates whether citizens judge equivalent performance information more negatively for public agencies compared to for-profit firms, not simply whether citizens have favorable views on the private sector over the public sector.

Another important theoretical contribution of this project is to highlight the role of institutional factors in shaping citizens' perceptions of public service by incorporating

market competition into the discussion. There has been a need to consider jurisdiction-level factors (e.g., community-level poverty, service market structure) to explain citizen satisfaction (Lyons, Lowery, and DeHoog 1992) because previous literature has mainly focused on individual-level factors (e.g., socioeconomic status, individual expectations or experiences). This study speaks to citizen satisfaction literature by suggesting that citizens' satisfaction with public programs can be explained by institutional factors in addition to individual-level factors.

### 5.2. Implications for Practice

This dissertation also provides practical implications for effective service delivery generally and quality healthcare specifically. First, the side effects of market competition in the private sector and their implications are worth discussing from a policy implication perspective, given that healthcare provision in the United States is primarily dominated by the private sector. The findings fundamentally challenge the notion of new public management that encourages public organizations to adopt the private model of management. The findings also raise the important question of how we should manage private facilities under increased market competition. Privatization might not be the best solution in the context of healthcare. Opening more public hospitals may not be a feasible option either because it would cost much taxpayer money.

One possible solution is establishing an effective oversight and monitoring system to prevent for-profits from taking advantage of the information asymmetry under increased market competition. Policymakers should consider both carrots (financial

incentives or rewards) and sticks (fines or penalties) or a mix of these two types of policy tools to ensure quality healthcare. Providing quality information to clients can help reduce information asymmetry and prevent for-profits from lowering the quality of care. These efforts can maximize the benefits of market competition in healthcare. Moreover, it is worth highlighting that the benefits of market competition in the public and nonprofit sectors appear in both the hospital and the nursing home contexts. This positive effect of market competition implies we may need to increase competition for the public and nonprofit sectors.

Second, the findings on the relationship between management and performance also suggest meaningful implications for public and nonprofit managers. Volumes of research exist on the effect of public management on public service performance, showing that public managers who effectively manage personnel and deal with environmental challenges can make a difference in program performance (e.g., Akkerman and Torenvlied 2011; Favero, Meier, and O'Toole 2016; Goerdel 2006; O'Toole and Meier 2009, 2011). Going further than this general knowledge, this project shows effective management strategies can vary across public, nonprofit, and for-profit organizations, implying that a one-size-fits-all approach may not be the best.

This research also suggests specific conditions that can enhance the effect of managers' efforts on performance, especially in the public sector. Public managers' efforts to buffer external turbulence, for example, may be maximized when they interact with the right actors (e.g., political principals) and when there is greater stability. These findings will inform public managers who search for effective networking strategies to

establish a buffering structure that can enhance their efforts to improve program performance.

Third, the results on the sector bias in citizens' evaluation of performance suggests that public and nonprofit organizations should communicate more about their performance with citizens and also try to improve their images and reputations. Effective communication on performance can serve as the primary tool for reducing sector bias and further promoting accountability. Performance reporting through a reliable communications system can be critical. It is also important to make performance information easily accessible to citizens and to make the information credible.

Promoting agency reputation can be another way to reduce anti-public bias. Recent studies show that some public agencies have images that evoke positive emotions among citizens based on "citizen-based brand equity" (Teodoro and An 2018, 321). Such efforts could increase citizens' awareness of service quality and improve their perceptions of performance in both the public and nonprofit sectors.

### 5.3. Limitations and Directions for Future Research

A few limitations in this research and the directions for future research should be addressed. First, although legal ownership, funding source, and social control are important elements in defining publicness (Bozeman 1987; Perry and Rainey 1988; Wamsley and Zald 1973), this dissertation focuses on ownership following the core dimension approach. Measuring each dimension of publicness and testing its impact on performance has been one of the biggest challenges in studying publicness because the

three dimensions of publicness are not mutually exclusive but rather overlap (Meier and O'Toole 2011).[44] Measuring social control, for example, is particularly a challenging task because (1) it is difficult to observe political control, whereas ownership and funding are relatively observable, and (2) often there is little variation in political control in a single country or the same service area.

Despite these difficulties, it is worth studying whether each dimension of publicness means something different and whether they have different impacts on service performance. For example, in U.S. healthcare—the research context of this dissertation—one way to measure social control is to use state-level variation in the policy implementation process. Although federal regulations apply to all hospitals, specific implementation processes may vary across states and this variation will allow us to see how organizations respond to the different levels of social control (see also Miller and Moulton 2013).

Another interesting topic for future research would be exploring the functional form of publicness. Andrews, Boyne, and Walker (2011), for instance, suggest that the effect of ownership and funding on performance can be moderated by social control. Further analysis can benefit the publicness discussion by showing whether and how each dimension of publicness interacts with the others and affects performance.

[44] Social control especially has received little attention due to its measurement difficulties. After reviewing more than 100 articles about publicness and performance, Andrews, Boyne, and Walker (2011) report that most studies focus on ownership rather than funding or control.

Second, although this project recognizes the importance of the multi-dimensional nature of public service performance, empirical analyses focus on overall performance or the quality aspect of performance. Public organizations have multiple performance criteria that come from multiple stakeholders with heterogeneous preferences (Andersen, Boesen, and Pedersen 2016; Boyne 2003b; Walker, Boyne, and Brewer 2010). This unique characteristic makes public agencies care more about equity, fairness, and accountability in addition to efficiency (Rainey 2009; Wilson 1987), while for-profit organizations tend to focus on efficiency.

Particularly, systematic research is in need of information about how public, nonprofit, and for-profit organizations promote equity in the public service provision. It is an important question because existing work suggests publicness may have different influences on efficiency and equity, respectively (Andrews, Boyne, and Walker 2011), and citizens tend to perceive public organizations as more equitable than private organizations (Hvidman 2018). In healthcare, are public and nonprofit facilities more effective in reducing healthcare access and outcome disparities than their for-profit counterparts under a competitive market? What management strategies are more likely to lead to more equitable and affordable access to healthcare public, nonprofit, and for-profit facilities? Do citizens give more positive feedback to public organizations when they promote equity rather than efficiency? Answering these questions will make a meaningful contribution to theory and practice.

Third, generalizability is another important direction for future research. All of my empirical analyses focus on U.S. healthcare institutions, although the analyses are

motivated by theoretical reasoning that is not limited to this particular context. The U.S. healthcare context provides a great research ground for testing theoretical arguments about publicness, environment, management, and performance. Whether the findings in U.S. healthcare are generalizable to other contexts, however, is an open question.

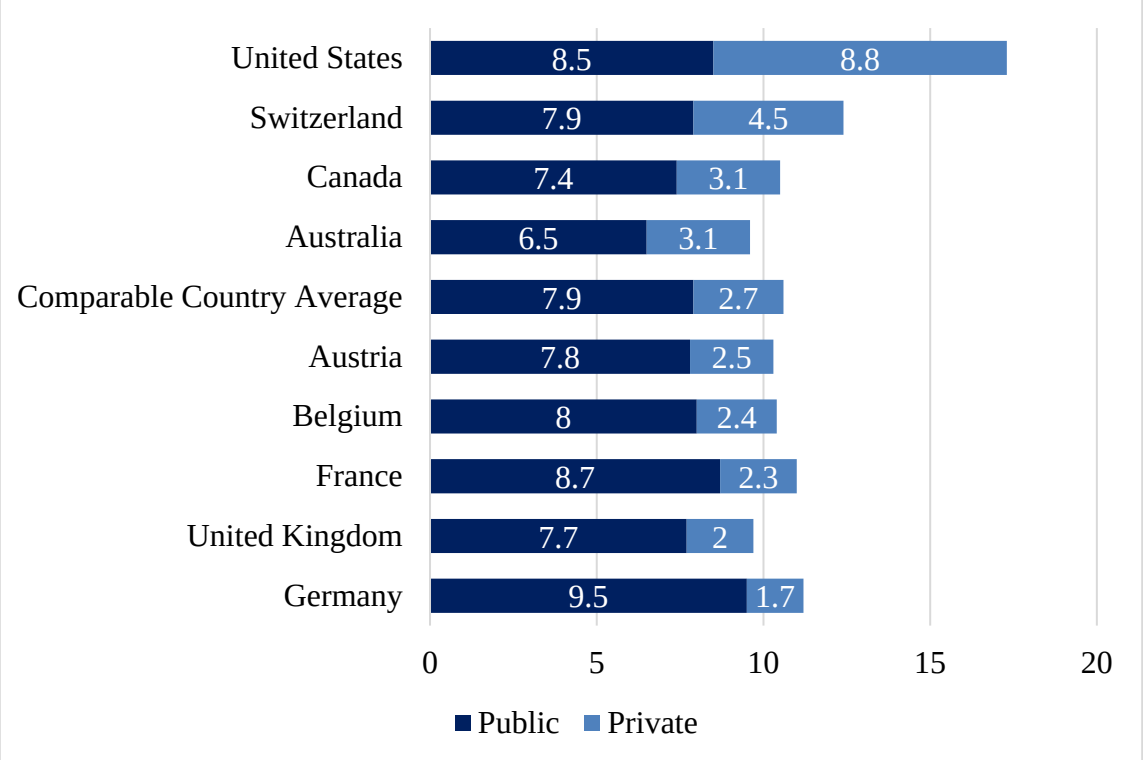
More specifically, it is crucial to test these theoretical arguments in other policy settings, such as education or law enforcement. Considering different policy contexts contributes to public administration theory by allowing us to take into account various service characteristics such as the levels of information asymmetry, the levels of professionalism, or the range of impact on individuals. These various service characteristics across policy areas may help us to understand heterogeneity in organizations' responding to market constraints, managing operations, and improving performance. Future research in other policy settings, therefore, will yield new insights that might be missed if only hospitals and nursing homes were examined.

Related to the generalizability issue, another important direction would be to apply the theory to a different national context. While all three essays are conducted in the U.S. context, the discussion on the public–private distinction is also a highly salient issue in many other countries. The cross-national analysis would be a particularly meaningful effort for healthcare since the role of the market versus government in delivering healthcare significantly varies across countries.

Historically, more centralized and nonmarket means have been frequently used in most countries outside of the United States, while private markets have long played a significant role in the provision of health care in the U.S. (Gaynor, Moreno-Serra, and

Propper 2013). In the example of healthcare expenditures, while the United States had public sector spending similar to that of other comparable countries in 2016, its private sector spending was almost triple that of comparable countries (see Figure 5.1). In 2016, public sector spending comprised 8.5% of the GDP in the United States and 7.9% of the GDP in comparable countries, on average. Private sector spending in the United States was 8.8%, while the comparable country average is 2.7% (Sawyer and Cox 2018).

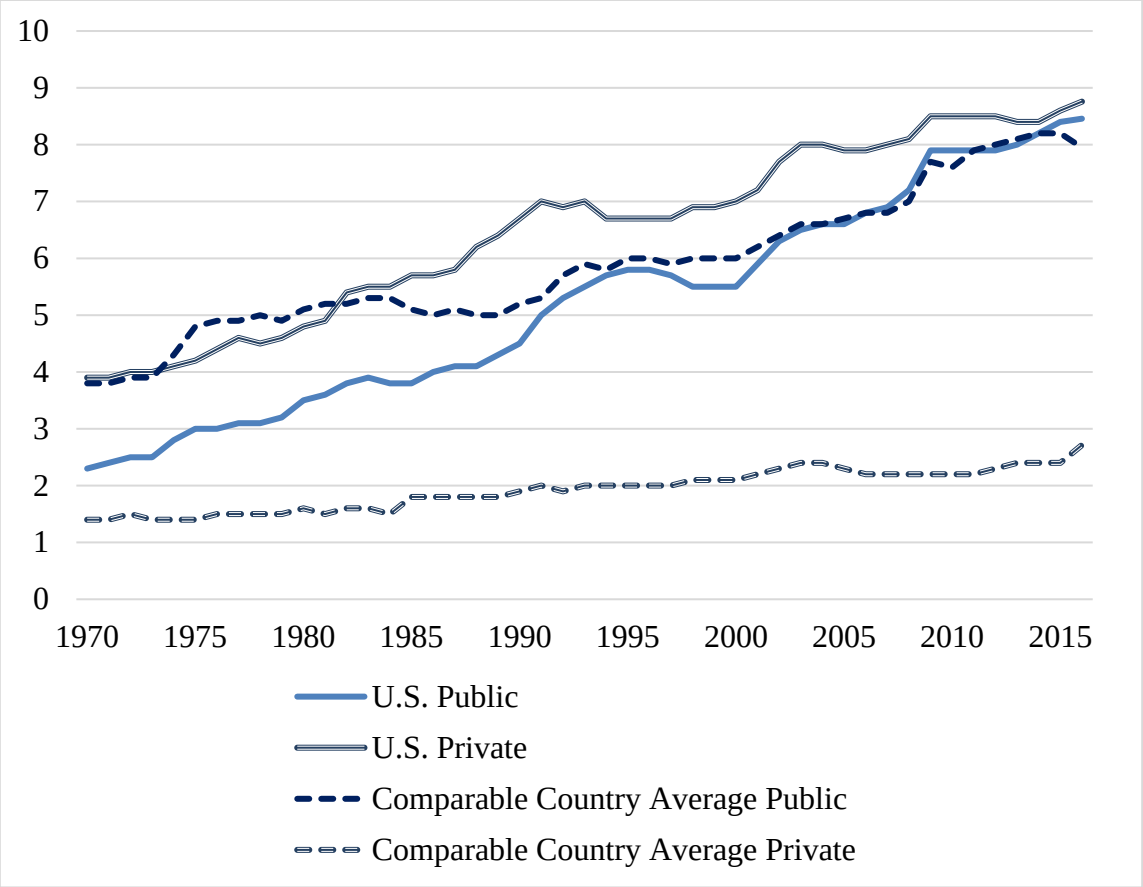
**Figure 5.1. Total Health Expenditures as a Percentage of GDP by Public vs. Private Spending: 2016**




*Source*. Adapted from "How does health spending in the U.S. compare to other countries?" by Sawyer and Cox (2018), Peterson-Kaiser Health System Tracker.
*Note*. Comparable countries in this analysis include Australia, Austria, Belgium, Canada, France, Germany, Japan, Netherlands, Sweden, Switzerland, United Kingdom, and the United States.

In addition to the relatively large portion of the private sector spending in the United States, Figure 5.2 shows that private expenditures in the United States have grown significantly over the last few decades, while the increases in private expenditures in other countries have been minimal. These differences highlight the importance of understanding the national context in discussing the roles of market and government in delivering healthcare services.

**Figure 5.2. Total Health Expenditures as a Percentage of GDP: 1970–2016**




*Source*. Adapted from "How does health spending in the U.S. compare to other countries?" by Sawyer and Cox (2018), Peterson-Kaiser Health System Tracker.
*Note*. Comparable countries in this analysis include Australia, Austria, Belgium, Canada, France, Germany, Japan, Netherlands, Sweden, Switzerland, United Kingdom, and the United States.

In addition to different levels of public versus private expenditures, the capacity of clients to vote across countries creates systematically different levels of market competition. Patients in the U.S. system, for example, have selective access to healthcare based on their insurance coverage. In many other countries, such as Canada, Germany, or South Korea, patients have universal access to healthcare based on a national insurance system. The different access levels can make a significant difference in market competition because universal access allows patients to go to any health agencies they want. While the evidence from U.S. elderly healthcare suggests that market competition can have a side effect in the for-profit sector, evidence from U.K. hospitals suggests that introducing more competition saves more lives without increasing costs (see Gaynor, Moreno-Serra, and Propper 2013). These contrasting findings suggest that we should take national context more seriously.

The value of the cross-national approach is not limited to the role of market competition or the field of healthcare. More generally, this approach allows us to consider the different levels of political control and citizens' perceptions of the service provisions of public and private organizations. While most countries have a control mechanism over service providers through regulations or oversight, the degree of control may substantially vary. Different levels of political control over service providers across countries allow us to consider the effect of political controls on successful service delivery.

Furthermore, citizens' perceptions of public service provision also can be varied across countries. Citizens in some countries may consider a particular service as a public

good and believe that it should be delivered by public agencies, while citizens in other countries consider it as a private good and prefer a market mechanism. A cross-national analysis that incorporates various countries with different institutional contexts will make a theoretical contribution to the literature.

To conclude, the publicness puzzle is not yet completely solved. There are no easy answers for maximizing performance under competition, finding the best management strategies, and improving citizens' perceptions of public sector performance. Still, the theoretical frameworks and empirical analyses contained in this dissertation help us to gain useful knowledge about how public, nonprofit, and for-profit institutions operate, manage resources, and make decisions that improve performance. This project also provides meaningful implications for successful public service provision through nonprofit, for-profit, and governmental organizations.

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APPENDIX

**Figure A.1. Nursing Home Ownership**

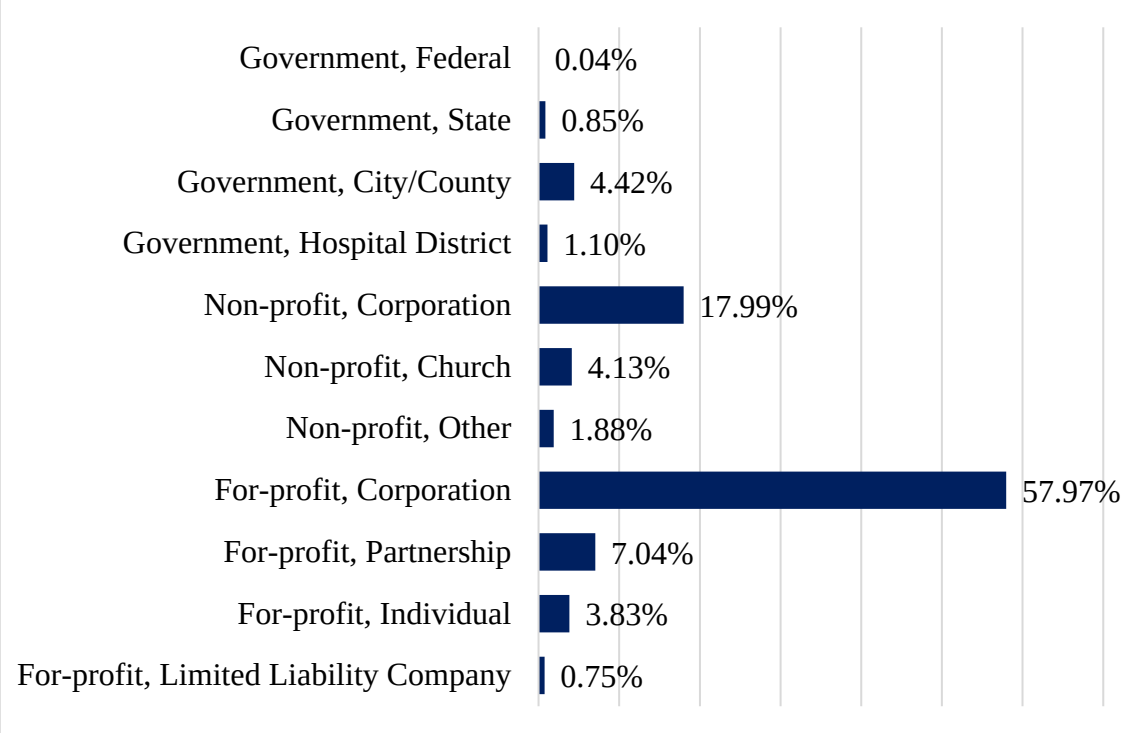

**Figure A.2. Health Deficiencies Across Public, Nonprofit, and For-profit Nursing Homes**

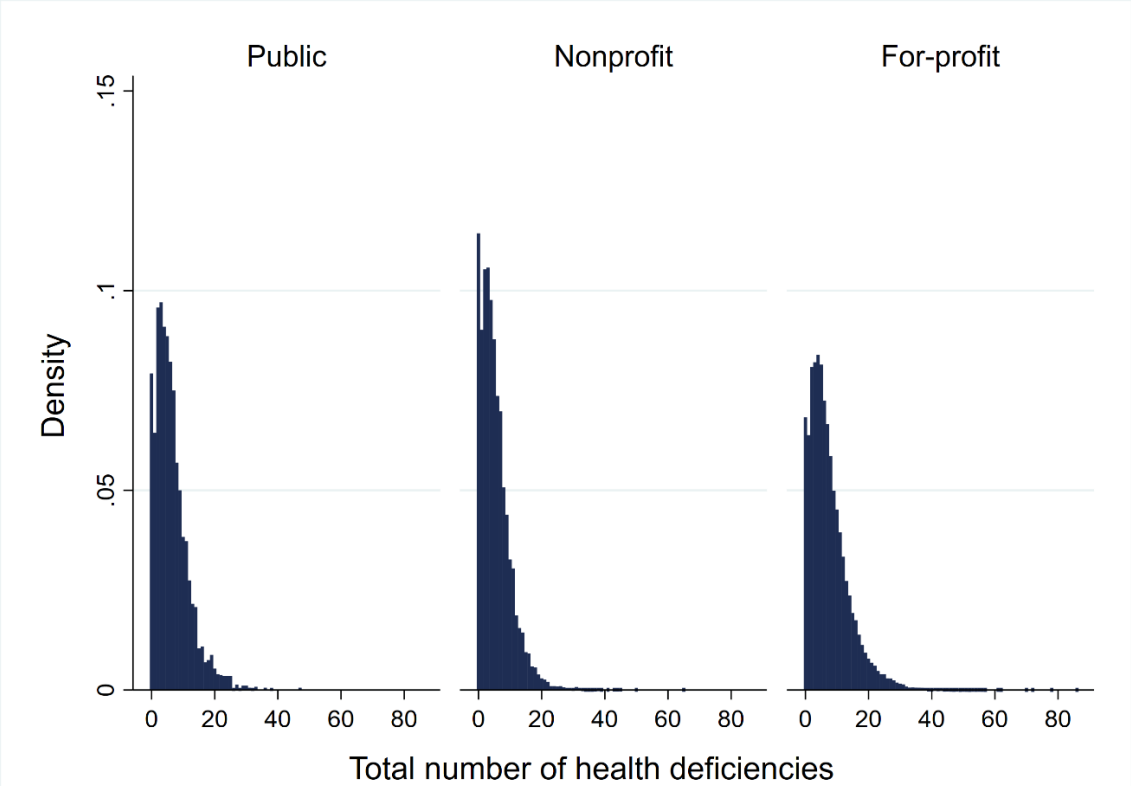

**Figure A.3. Competition Across Sectors and Competition Within the Sector**

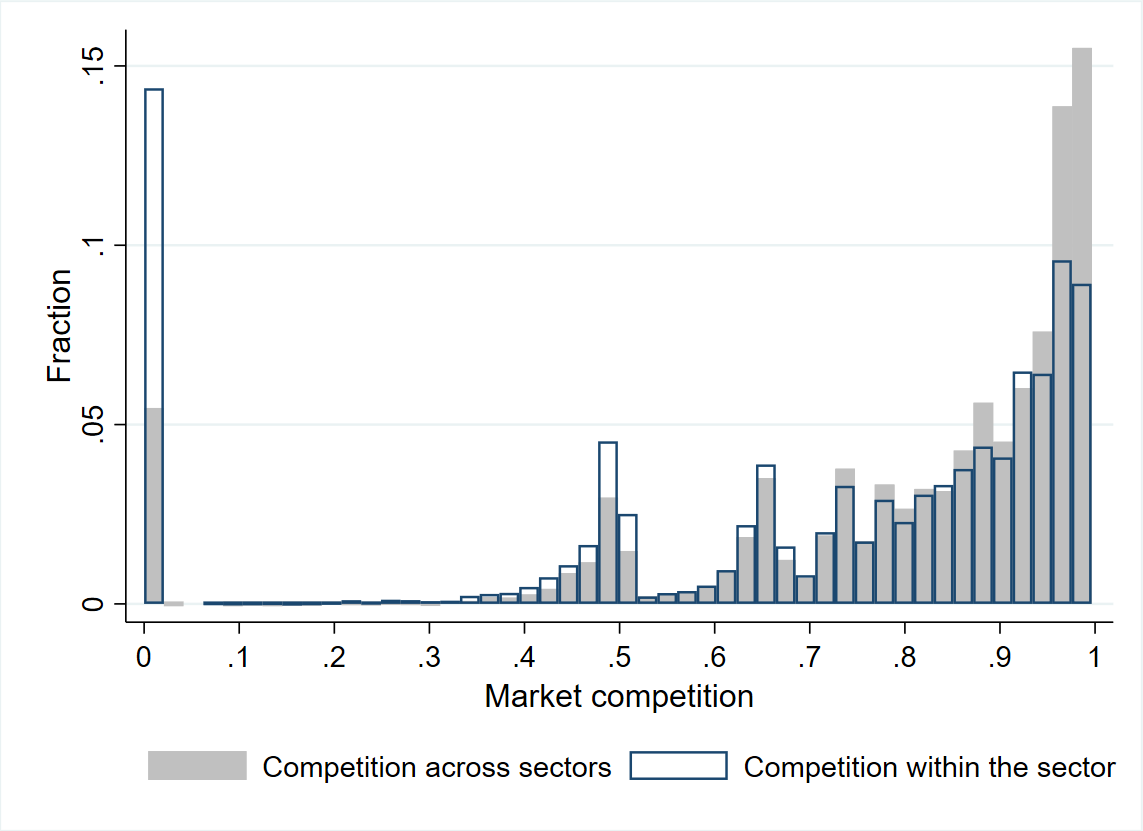

**Figure A.4. Quality Rating Across Public, Nonprofit, and For-profit Nursing Homes**

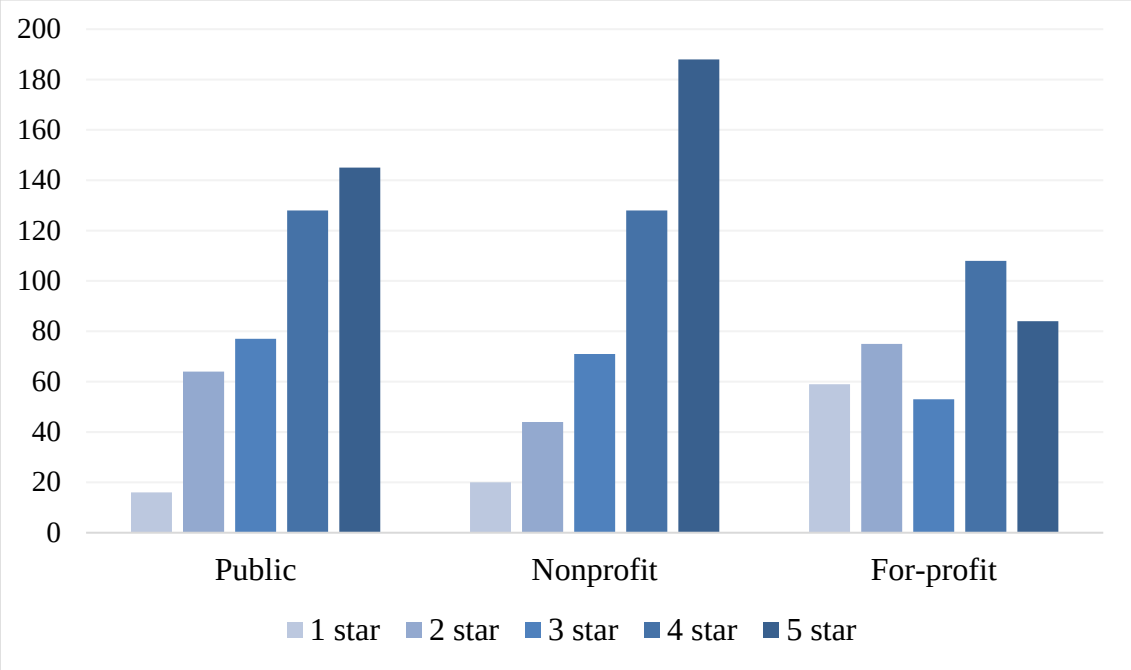

**Table A.1. Descriptive Statistics for All Variables: Chapter 2**

| Variable | Mean | SD | Min | Max | Source |
|---|---|---|---|---|---|
| *Dependent variable* | | | | | |
| Total number of health deficiencies | 6.95 | 6.07 | 0 | 86 | NHC |
| Overall 5-star rating | 3.29 | 1.36 | 1 | 5 | NHC |
| *Independent variable* | | | | | |
| Public home (yes = 1; no = 0) | 0.06 | - | 0 | 1 | NHC |
| Nonprofit home (yes = 1; no = 0) | 0.24 | - | 0 | 1 | NHC |
| For-profit home (yes = 1; no = 0) | 0.70 | - | 0 | 1 | NHC |
| Lagged market competition | 0.79 | 0.25 | 0 | 1.00 | NHC |
| *Facility-level controls* | | | | | |
| Number of federally certified beds | 107.27 | 61.65 | 3 | 1389 | NHC |
| Number of residents in certified beds | 88.45 | 54.77 | 2 | 955 | NHC |
| Staffing hours per resident per day | 4.13 | 1.04 | 1.51 | 51.26 | NHC |
| Years since Medicare/Medicaid certified | 26.61 | 11.63 | 1 | 50 | NHC |
| Changed ownership in last 12 months (yes = 1; no = 0) | 0.03 | - | 0 | 1 | NHC |
| Certification: Medicare and Medicaid | 0.93 | - | 0 | 1 | NHC |
| Certification: Medicare only | 0.04 | - | 0 | 1 | NHC |
| Certification: Medicaid only | 0.03 | - | 0 | 1 | NHC |
| Hospital affiliated home (yes = 1; no = 0) | 0.05 | - | 0 | 1 | NHC |
| *County-level controls* | | | | | |
| Population density per sq. mile (in 1,000s) | 1.28 | 4.08 | 0.00 | 72.17 | ACS |
| Elderly population (%) | 15.24 | 3.87 | 5.76 | 53.1 | ACS |
| White population (%) | 78.19 | 16.34 | 11.05 | 100 | ACS |
| Population without health insurance (%) | 12.60 | 5.06 | 2.15 | 45.71 | ACS |
| Unemployed population (%) | 5.16 | 1.61 | 0 | 17.02 | ACS |
| Poverty population (%) | 14.63 | 5.23 | 2.64 | 48.98 | ACS |
| Gini index of income inequality | 0.45 | 0.03 | 0.32 | 0.65 | ACS |

*Note.* Based on a sample of 58,595 nursing homes used in the analysis.

**Table A.2. Divergence in Regulatory Compliance Under Market Competition: Lagged DV model**

| Dependent variable = The number of health deficiencies | | |
|---|---|---|
| | Coef. | Robust SE |
| Public home | 0.051 | (0.038) |
| Nonprofit home | –0.015 | (0.034) |
| Lagged market competition | 0.109*** | (0.030) |
| Public home × Lagged market competition | –0.171*** | (0.050) |
| Nonprofit home × Lagged market competition | –0.156*** | (0.041) |
| Lagged number of health deficiencies | 0.052*** | (0.001) |
| Number of certified beds | 0.002*** | (0.000) |
| Number of residents | –0.001*** | (0.000) |
| Staffing hours | –0.079*** | (0.007) |
| Years since certification | 0.001+ | (0.000) |
| Changed ownership | 0.093*** | (0.021) |
| Certification: Medicare only | –0.196*** | (0.025) |
| Certification: Medicaid only | –0.071** | (0.025) |
| Hospital affiliated home | –0.004 | (0.021) |
| Population density | –0.026*** | (0.004) |
| Elderly population | –0.005** | (0.002) |
| White population | –0.001+ | (0.001) |
| Population without health insurance | –0.001 | (0.003) |
| Unemployed population | –0.015* | (0.008) |
| Poverty population | 0.005* | (0.002) |
| Gini index of income inequality | 0.730* | (0.360) |
| Constant | 0.002*** | (0.000) |
| State fixed effects | Yes | |
| Year fixed effects | Yes | |
| AIC | 250,757.45 | |
| BIC | 251,411.07 | |
| *N* | 45,023 | |

*Note.* Coefficients from negative binomial regression analysis are reported. Robust standard errors are clustered by county and shown in parentheses. The reference group for public and nonprofit nursing homes is for-profit homes. The reference group for certification status is nursing homes certified by both Medicare and Medicaid. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

**Table A.3. Divergence in Quality of Care Under Market Competition**

| Dependent variable = Overall quality rating | | | | |
|---|---|---|---|---|
| | Coef. | Robust SE | Coef. | Robust SE |
| Public home | 0.360*** | (0.057) | –0.163 | (0.119) |
| Nonprofit home | 0.545*** | (0.035) | –0.079 | (0.101) |
| Lagged market competition | –0.075 | (0.078) | –0.332*** | (0.090) |
| Public home × Lagged market competition | | | 0.740*** | (0.161) |
| Nonprofit home × Lagged market competition | | | 0.774*** | (0.121) |
| Number of certified beds | –0.012*** | (0.001) | –0.012*** | (0.001) |
| Number of residents | 0.009*** | (0.001) | 0.009*** | (0.001) |
| Staffing hours | 0.584*** | (0.028) | 0.581*** | (0.028) |
| Years since certification | –0.002+ | (0.001) | –0.002 | (0.001) |
| Changed ownership | –0.357*** | (0.051) | –0.358*** | (0.051) |
| Certification: Medicare only | 0.456*** | (0.078) | 0.437*** | (0.079) |
| Certification: Medicaid only | 0.367*** | (0.096) | 0.403*** | (0.096) |
| Hospital affiliated home | –0.502*** | (0.072) | –0.447*** | (0.074) |
| Population density | 0.070*** | (0.011) | 0.070*** | (0.011) |
| Elderly population | 0.009+ | (0.005) | 0.010+ | (0.006) |
| White population | 0.003 | (0.002) | 0.003 | (0.002) |
| Population without health insurance | –0.003 | (0.008) | –0.002 | (0.008) |
| Unemployed population | 0.025 | (0.021) | 0.022 | (0.021) |
| Poverty population | –0.027*** | (0.006) | –0.029*** | (0.006) |
| Gini index of income inequality | 0.295 | (0.983) | 0.383 | (0.975) |
| State fixed effects | Yes | | Yes | |
| Year fixed effects | Yes | | Yes | |
| AIC | 173,543.80 | | 173,422.94 | |
| BIC | 174,217.18 | | 174,114.28 | |
| *N* | 58,595 | | 58,595 | |

*Note.* Coefficients from ordered logit regression analysis are reported. Robust standard errors are clustered by county and shown in parentheses. The reference group for public and nonprofit nursing homes is for-profit homes. The reference group for certification status is nursing homes certified by both Medicare and Medicaid. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

**Table A.4. Factor-Analytical Results: Internal and External Management**

| Survey Item | Factor Loading |
|---|---|
| *Internal management* | |
| I involve nursing and other non-managerial staff in my nursing home's decision-making process. | 0.76 |
| Residents' and families' feedback and outcomes are taken into consideration when revising policies. | 0.77 |
| Non-manager feedback is taken into consideration when revising policies. | 0.77 |
| The information I receive from others regarding operations and performance matches my own perceptions. | 0.50 |
| I give my senior staff a great deal of discretion in making decisions. | 0.49 |
| I often reconcile disagreements within our nursing home. | 0.41 |
| Eigenvalue = 2.41 | |
| Cronbach's alpha = 0.68 | |
| *Exploiting the environment* | |
| Our nursing home is always among the first to adopt new ideas and practices. | 0.89 |
| Our nursing home is always among the first to adopt new technology. | 0.85 |
| We continually search for new opportunities to provide services to our community. | 0.77 |
| Eigenvalue = 2.10 | |
| Cronbach's alpha = 0.78 | |
| *Buffering the environment* | |
| My role is to respond to various events and disturbances in the external environment of our nursing home. | 0.52 |
| I always try to limit the influence of external events on the staff and nurses. | 0.78 |
| I strive to control those factors outside the nursing home that could have an effect on my organization. | 0.85 |
| Eigenvalue = 1.59 | |
| Cronbach's alpha = 0.54 | |

**Table A.5. Factor-Analytical Results: Managerial Networking**

Survey Question: As a Nursing Home Administrator, how frequently do you interact with the following organizations and persons?
Never = 1; Yearly = 2; Monthly = 3; Weekly = 4; More Than Once a Week= 5; Daily = 6

| Survey Item | Financial networking | Political networking |
|---|---|---|
| State regulatory agencies | 0.15 | **0.84** |
| State and local public officials | 0.12 | **0.85** |
| State Medicaid | **0.76** | 0.22 |
| Medicare intermediaries | **0.84** | 0.17 |
| Insurance companies | **0.83** | 0.07 |
| Information/assistive technology vendors | **0.62** | 0.12 |
| Variance | 2.40 | 1.52 |
| Proportion | 0.40 | 0.25 |
| Eigenvalue | 2.76 | 1.16 |

**Table A.6. Descriptive Statistics for All Variables: Chapter 3**

| Variable | Mean | SD | Min | Max | Source |
|---|---|---|---|---|---|
| *Dependent variable* | | | | | |
| Five-star quality rating | 3.65 | 1.23 | 1 | 5 | NHC |
| *Independent variable* | | | | | |
| Public home (yes = 1; no = 0) | 0.34 | - | 0 | 1 | NHC |
| Nonprofit home (yes = 1; no = 0) | 0.36 | - | 0 | 1 | NHC |
| For-profit home (yes = 1; no = 0) | 0.30 | - | 0 | 1 | NHC |
| Internal management | 0.00 | 0.95 | –3.62 | 1.77 | Survey |
| Exploiting the environment | 0.00 | 0.96 | –3.06 | 1.94 | Survey |
| Buffering the environment | 0.00 | 0.98 | –3.24 | 2.33 | Survey |
| Political networking | 0.00 | 0.84 | –2.53 | 5.31 | Survey |
| Financial networking | 0.00 | 0.84 | –2.07 | 4.01 | Survey |
| Managerial stability (years) | 7.25 | 7.75 | 0 | 48 | Survey |
| *Facility-level controls* | | | | | |
| Number of certified beds | 100.30 | 69.34 | 10 | 720 | NHC |
| Number of residents | 84.92 | 64.30 | 3 | 694 | NHC |
| Staffing hours | 4.37 | 1.65 | 1.63 | 51.26 | NHC |
| Years since certification | 25.22 | 12.05 | 2 | 50 | NHC |
| Changed ownership during past 12 months (yes = 1; no = 0) | 0.02 | - | 0 | 1 | NHC |
| Certification: Medicare and Medicaid | 0.88 | - | 0 | 1 | NHC |
| Certification: Medicare only | 0.04 | - | 0 | 1 | NHC |
| Certification: Medicaid only | 0.08 | - | 0 | 1 | NHC |
| Hospital affiliated home (yes = 1; no = 0) | 0.11 | - | 0 | 1 | NHC |
| *County-level controls* | | | | | |
| Population density per sq. mile (in 1,000s) | 0.83 | 3.37 | 0.00 | 72.17 | ACS |
| Percentage of elderly population (%) | 16.11 | 4.27 | 6.69 | 37.62 | ACS |
| Percentage of white population (%) | 83.34 | 15.35 | 17.14 | 99.61 | ACS |
| No health insurance population (%) | 12.28 | 5.18 | 2.15 | 36.41 | ACS |
| Unemployed population (%) | 4.71 | 1.76 | 0.42 | 11.87 | ACS |
| Poverty population (%) | 13.99 | 4.87 | 2.49 | 37.85 | ACS |
| Gini index of income inequality | 0.44 | 0.03 | 0.34 | 0.60 | ACS |
| Market competition | 0.70 | 0.29 | 0.00 | 1.00 | NHC |

*Note.* Based on a sample of 1,260 nursing home administrators and facilities used in the analysis.

**Table A.7. Managerial Stability, Buffering, and Performance**

| Dependent variable = Overall five-star quality rating | | | |
|---|---|---|---|
| | Public | Nonprofit | For-profit |
| Managerial stability | 0.029* | 0.007 | 0.024 |
| | (0.014) | (0.014) | (0.015) |
| Buffering | –0.346** | 0.112 | –0.022 |
| | (0.129) | (0.152) | (0.172) |
| Buffering × Managerial stability | 0.025* | –0.002 | 0.018 |
| | (0.012) | (0.014) | (0.016) |
| Exploiting | 0.166 | 0.219+ | 0.281* |
| | (0.124) | (0.127) | (0.121) |
| Controls included | Yes | Yes | Yes |
| State fixed effects | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes |
| AIC | 1,229.96 | 1,273.51 | 1,187.80 |
| BIC | 1,518.48 | 1,553.09 | 1,439.80 |
| *N* | 430 | 451 | 379 |

*Note*. Coefficients from ordered logit regression analysis are reported. Robust standard errors are clustered by county and shown in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

**Table A.8. HCAHPS Survey Questions**

| |
|---|
| *Nurse communication* |
| During this hospital stay how often did nurses treat you with courtesy and respect? |
| During this hospital stay how often did nurses listen carefully to you? |
| During this hospital stay how often did nurses explain things in a way you could understand? |
| *Doctor communication* |
| During this hospital stay, how often did doctors treat you with courtesy and respect? |
| During this hospital stay, how often did doctors listen carefully to you? |
| During this hospital stay, how often did doctors explain things in a way you could understand? |
| *Responsiveness of hospital staff* |
| During this hospital stay, after you pressed the call button, how often did you get help as soon as you wanted it? |
| How often did you get help in getting to the bathroom or in using a bedpan as soon as you wanted? |
| *Pain management* |
| During this hospital stay, how often was your pain well controlled? |
| During this hospital stay, how often did the hospital staff do everything they could to help you with your pain? |
| *Communication about medicine* |
| Before giving you any new medicine how often did hospital staff tell you what the medicine was for? |
| Before giving you any new medicine how often did hospital staff describe possible side effects in a way you could understand? |
| *Discharge information* |
| During this hospital stay, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital? |
| During this hospital stay, did you get information in writing about what symptoms or health problems to look out for after you left the hospital? |
| *Cleanliness and quietness of hospital environment* |
| During this hospital stay, how often were your room and bathroom kept clean? |
| During this hospital stay, how often was the area around your room quiet at night? |
| *Overall rating of hospital* |
| Using any number from 0 to 10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital during your stay? |

**Table A.9. Descriptive Statistics for All Variables: Chapter 4**

| Variable | Mean | SD | Min | Max | Source |
|---|---|---|---|---|---|
| *Dependent variable* | | | | | |
| Patient satisfaction | 42.14 | 18.04 | 3 | 98 | HC |
| *Independent variable* | | | | | |
| Public hospital (yes = 1; no = 0) | 0.13 | - | 0 | 1 | AHA |
| Nonprofit hospital (yes = 1; no = 0) | 0.71 | - | 0 | 1 | AHA |
| For-profit hospital (yes = 1; no = 0) | 0.16 | - | 0 | 1 | AHA |
| Clinical process | 59.75 | 18.03 | 0 | 100 | HC |
| Outcome score | 31.70 | 20.62 | 0 | 100 | HC |
| 30-day readmission rates | 19.79 | 1.29 | 15.93 | 26.85 | HC |
| *Facility-level controls* | | | | | |
| Total employees (logged) | 6.74 | 0.95 | 4.33 | 10.19 | AHA |
| Total employees per 10 beds (logged) | 3.86 | 0.43 | 2.02 | 5.34 | AHA |
| Medicaid discharges (logged) | 7.12 | 1.23 | 0 | 10.48 | AHA |
| Medicare discharges (logged) | 8.16 | 1.03 | 0 | 10.63 | AHA |
| Fulltime RNs (%) | 28.08 | 8.12 | 0 | 64.36 | AHA |
| Technical support (yes = 1, no = 0) | 0.23 | - | 0 | 1 | AHA |
| Acute beds (%) | 0.22 | 2.88 | 0 | 65.70 | AHA |
| Rural hospitals (yes = 1, no = 0) | 0.14 | - | 0 | 1 | AHA |
| *County-level controls* | | | | | |
| Market competition | 13.66 | 5.61 | 1 | 29 | AHA |
| Population density (logged) | 5.92 | 1.62 | 1.36 | 11.17 | ACS |
| Poverty rates (%) | 14.96 | 5.42 | 3.53 | 43.25 | ACS |
| Unemployed population (%) | 5.91 | 1.54 | 1.17 | 12.22 | ACS |
| No health insurance coverage (%) | 14.35 | 5.49 | 2.52 | 45.71 | ACS |

*Note.* Based on a sample of 1,925 hospitals used in the analysis.

**Table A.10. The Effect of Market Competition and Ownership on Performance**

| DVs | Process | Outcome | Readmission |
|---|---|---|---|
| Public hospital | –9.772* | –5.945 | 0.221 |
| | (4.109) | (4.053) | (0.239) |
| Nonprofit hospital | –6.723* | –2.779 | 0.024 |
| | (3.039) | (3.330) | (0.181) |
| Market competition | –0.065 | –0.411* | 0.027* |
| | (0.180) | (0.193) | (0.011) |
| Public hospital × Market competition | 0.082 | 0.444+ | –0.025 |
| | (0.258) | (0.270) | (0.017) |
| Nonprofit hospital × Market competition | 0.131 | 0.208 | –0.021+ |
| | (0.196) | (0.213) | (0.013) |
| Total employees | –1.418 | 2.339* | –0.382*** |
| | (1.077) | (1.080) | (0.065) |
| Total employees per 10 beds | 1.355 | 1.211 | 0.203* |
| | (1.356) | (1.341) | (0.081) |
| Medicaid discharges | –0.728 | –1.593* | 0.278*** |
| | (0.672) | (0.675) | (0.042) |
| Medicare discharges | 1.012 | 4.047*** | –0.228*** |
| | (0.855) | (0.962) | (0.049) |
| Fulltime RNs | 0.156* | 0.057 | –0.005 |
| | (0.062) | (0.066) | (0.004) |
| Technical support | 0.319 | –0.534 | –0.051 |
| | (0.976) | (1.109) | (0.064) |
| Acute beds | –0.467* | 0.204 | 0.009 |
| | (0.188) | (0.151) | (0.008) |
| Rural hospitals | 0.474 | –1.712 | –0.024 |
| | (1.400) | (1.337) | (0.087) |
| Population density | 1.459*** | 1.634*** | 0.135*** |
| | (0.381) | (0.423) | (0.024) |
| Poverty rate | –0.342*** | 0.066 | 0.022*** |
| | (0.100) | (0.107) | (0.007) |
| Unemployed rate | –0.417 | –0.153 | 0.076* |
| | (0.441) | (0.452) | (0.029) |
| No health insurance | 0.303+ | 0.487** | –0.003 |
| | (0.169) | (0.166) | (0.010) |
| State fixed effects | Yes | Yes | Yes |
| Adjusted *R*-squared | 0.073 | 0.164 | 0.241 |
| *N* | 1,925 | 1,925 | 1,924 |

*Note*. Reference for ownership is for-profit hospitals. Robust standard errors shown in parentheses. + p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.